NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Technical Memorandum 33-523

Volume IV

Tracking and Data System Support for the Mariner Mars 1971 Mission

Extended Mission Operations

P. W. Barnum

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National Aeronautics and Space Administration

PREFACE

The work described in this report was performed by the Tracking and Data Acquisition organizations of the Jet Propulsion Laboratory and the NASA Communications Network of the Goddard Space Flight Center. This volume covers the Tracking and Data System activities in support of the Mariner Mars 1971 Project extended operations from April 1 to October 27, 1972. Tracking and Data System flight support, performance evaluation, and configuration are described.

ACKNOWLEDGMENT

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W. G. Meeks	Assistant
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M. D. Weidner	Assistant
L. E. Jennings	SFOF Data Systems
B. M. Hayes	SFOF Support
E. S. Burke, Jr.	Telemetry System
A. L. Berman	Tracking System
D. M. Enari	Command System
J. E. Allen	Monitor System

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ABSTRACT

This volume of the Tracking and Data System (TDS) Support for the Mariner Mars 1971 Mission final report contains the deep space tracking and data acquisition activities in support of extended operations, which include the period from the end of the primary mission (April 1, 1972) to spacecraft demise (October 27, 1972). Included are presentations of the TDS flight support pass chronology data for each of the Deep Space Stations used, and performance evaluations for the Deep Space Network Telemetry, Tracking, Command, and Monitor Systems.

I. INTRODUCTION

A. Purpose

This document, Volume IV of the Tracking and Data System (TDS) Support for the Mariner Mars 1971 (MM'71) Mission, summarizes deep space tracking and data acquisition activities in support of extended operations of the Mariner Mars 1971 Mission from the end of the primary mission (April 1, 1972) to spacecraft demise (October 27, 1972). With the previously completed Volumes I, II, and III, this report constitutes the complete history of TDS activities supporting MM'71.

B. Scope

Volume IV contains a description of TDS flight support of extended operations from the end of the primary mission to the end of the extended mission (Section III). TDS requirements (Section I), TDS plan and configuration (Section II), and TDS performance and evaluation (Section III) are also included.

Volume I covers TDS support of prelaunch testing and training for both near-Earth and deep space phases (Section IV) and TDS flight support from launch operations through first trajectory correction maneuver (Section V). TDS requirements (Section II), TDS plan and configuration (Section III), and TDS performance evaluation (Section VI) are also included.

Volume II describes TDS flight support from the first trajectory correction maneuver through the end of the cruise period and orbit insertion (Section III), plus TDS support of preorbital testing and training (Section IV). TDS requirements (Section I), TDS plan and configuration (Section II), and TDS performance and evaluation (Section III) are also included.

Volume III contains a description of TDS flight support of orbital operations from orbit insertion to end of primary mission (Section III). TDS requirements (Section I), TDS plan and configuration (Section II), and TDS performance and evaluation (Section III) are also included.

C. TDA Function and Organization

The TDA function and organization is presented in the Introduction, Section I, Volume I, and is therefore not covered in this report.

D. TDS Organization

The TDS organization, as described in Volume I, has undergone no changes or additions.

E. TDS Requirements on Project

The DSN required the Project to supply spacecraft/DSS telecommunications interface information in accordance with JPL Document 610-74, Volume II of Operations Plan. The Project was required to supply standards and limits for the DSN Tracking, Telemetry, and Command Systems in accordance with JPL Document 610-75, Revision A, Volume IIB of Operations Plan. The TDS required the Project to conform with NASA Directive 2570.1A, which required all planetary projects to provide their spacecraft with a capability to turn off the RF carrier by command at the completion of the mission.

F. Mission Operations

Mission Operations for MM'71 are presented in Section I of Volume I.

G. Extended Mission Objectives

The extended mission of MM'71 is unique among Mariner missions in that the spacecraft remained at the planet. All data-taking capabilities of the nominal mission remained; however, the data return capabilities were decreased. Because of the long time in orbit and the solar geometry, it

was possible to formulate mission objectives unique to the extended mission, in addition to extending the nominal mission. Table 1 indicates the extended mission objectives and the experiments that achieved them.

H. Mission Plan

In general, the MM'71 Mission Plan is the same as that presented in Volume II, except for the changes detailed in Project Document PD 610-16, MP-71-4-200A (Amendments 8 through 18). Extended mission operations differed from the nominal mission in that several constraints materialized which affected the acquisition of additional data. Ground and spacecraft operations were adjusted to compensate.

The constraints, caused by increased Earth-Mars distance and nonoptimal Sun-Earth-Mars geometry, primarily impacted three spacecraft functional areas: telecommunications, attitude control, and power management.

1. Telecommunications constraints. During the extended mission, the communication distance increased from about 250×10^5 km at the beginning to 400×10^6 km at superior conjunction during September 1972. The corresponding decrease in communication performance severely constrained the extended mission operations. The 50-bps real-time science was available only through the high-gain antenna (HGA); the 8.1-kbps real-time science was not available at all after the first few days of the extended mission. The extended mission plan called for maneuvering the spacecraft to point the HGA at Earth for science data playback at the highest possible rate.

2. Attitude control constraints. Pointing the HGA toward Earth during the extended mission required that the spacecraft be maneuvered since the Earth-spacecraft-Sun angle had exceeded the range of the antenna pointing capability. Such spacecraft maneuvers along with the control necessary during the additional scan platform slewing required during the extended mission called for moderate budgeting of the attitude control gas expenditure. Excessive control gas usage could restrict data acquisition toward the end of the extended mission period. If no gas system failures had occurred, it was projected that there would be sufficient gas for 350 to 400 days of normal operations.

3. Power constraints. During the extended mission, the spacecraft was subjected to periods of Sun occultation where the spacecraft was required to operate on battery power alone. Occultation of less than 3 hours was accepted.

In order to conserve battery power during Sun occultations and minimize recharge time, it was required to place the spacecraft, at least to some extent, into a survival state of minimal power consumption, with reduced or no data acquisition.

Power conservation also constrained the playback time when maneuvering the HGA toward Earth, since, for larger maneuvers (about 40-deg cone angle), battery sharing resulted. It was necessary to allocate sufficient battery charging time to replenish battery power, during which time science data acquisition was impacted.

I. Nominal Plan for Phase II: Sun Occultation Period

The spacecraft will first begin Sun occultations about revolution 282 on April 2, 1972. Until about revolution 408 on June 4, 1972, the spacecraft will pass through the shadow of Mars twice a day--once every orbit. Around April 20, the time spent in the shadow of Mars will be at a maximum of about 1 hour 40 minutes. During this phase of the mission, the spacecraft will be placed into a survival mode and acquire no science data until Sun occultations end.

1. Spacecraft survival mode. During the time spent out of the shadow of Mars, the spacecraft will be in the following state:

(1) Science off (including DAS).

(2) Scan off.

(3) DSS off.

(4) Canopus tracker off.

(5) Attitude control-roll drift/rate limited.

(6) Propulsion heater off.

(7) TWT on, high power.

(8) Automatic pilot off.

(9) 30-V regulator off.

(10) LGA on.

(11) Battery charger on (high/low).

When in the occultation region, the spacecraft state is much the same except that the battery charger is on but not charging, and the power usage rate from the battery is 278 watts. Depending upon whether DSN coverage is available, two possible attitude control modes exist.

a. Attitude control with DSN coverage. As Fig. 1 indicates, when DSN coverage is available, the spacecraft will be in the ALL AXES INERTIAL mode during the time it is in the shadow of Mars. The DC-32 command that is transmitted to the spacecraft allows the CC&S command (7M2), which comes a few minutes later, to put the spacecraft into the ALL AXES INERTIAL mode before Sun occultation. After Sun occultation, a CC&S command (7M2 NOT) places the spacecraft into the ALL AXES/RATE LIMITED mode for about 25 minutes. In this mode the spacecraft is Sun-acquired (Sun sensors enabled) so it is only free to drift in roll. The next set of CC&S commands (7G and 7G NOT) causes the spacecraft to go back to the ROLL DRIFT/RATE LIMITED mode, in which it stays until the next Sun occultation.

b. Attitude control without DSN coverage. Because of the inability to send the DC-32 command, the spacecraft will automatically go into the ALL AXES DRIFT/RATE LIMITED mode when it senses the Sun occultation. In this mode, because the spacecraft is allowed to drift, a reacquisition of the Sun may be necessary upon exiting the shadow. After acquisition of the Sun, the spacecraft

goes into the ROLL DRIFT/RATE LIMITED mode until it senses another occultation. This sequence is entirely automatic.

c. Battery charge rates. Normally the battery will recharge at the high rate until an automatic switchover (non-CC&S) to the low charge rate. If it is desirable to charge longer at high rate, the automatic switchover can be disabled and the CC&S can be reprogrammed to command (4A) the switchover later.

d. Gas leak control. If required, the CC&S will be programmed to automatically cycle the roll gyro to clear possible expected gas leaks. When this action is necessary, the maximum time a gas leak can continue will be about 5 hours between gyro cycling, otherwise a gas leak can continue for as long as 9 hours.

2. Standard mission day. Figure 1 indicates the detailed timing of the standard mission day (SMD). With the exception of the DC-32 ground command (see Subsection 1-a), the entire SMD is CC&S-controlled. Even without ground command capability, the sequence could function, without a CC&S update, until the end of the Sun occultation period in June. Due to unique Sun-Mars-spacecraft geometry and efficient CC&S programming, the timing of all events can remain constant relative to GMT each day.

3. Attitude control gas usage rate. On the days that MM'71 has DSN coverage, and therefore command capability, the gas usage will be about 1.8 g (4 mlb) per day with normal gas leak losses. Without DSN support (no DC-32's), the rate of attitude control gas use could be as high as 8.2 g (18 mlb) per day, again with normal gas leak losses. If gas leaks become excessive during this period, gas usage could be significantly higher with and without DSN coverage.

J. Nominal Plan for Phase III: Post-Sun Occultation

Science data gathering during Phase III includes monitoring of the planet's dynamic state, completion of the mapping from 40°N lat to the North Pole (a region previously obscured by the North Polar Hood), photography of some 25-30 proposed Viking landing sites, and high resolution coverage of specific geological features of interest.

Data taking during Phase III will be done on a weekly cycle (see Fig. 2). The cycle begins the first week of June and continues for nine consecutive weeks. Each weekly cycle begins with a CC&S update on Wednesday for a zenith/nadir data taking pair on Thursday/Friday. The zenith revolution on Friday is then used to play the tape-recorded data back to Earth. In order for the spacecraft to play any data back at all, it must perform a high-gain-antenna maneuver (HGAM) prior to the tape playback to optimally point the HGA toward the Earth. After all of the data have been returned, the spacecraft will reorient itself to again reacquire celestial (Sun-star) references. The entire sequence is again repeated for the next zenith/nadir pair in the same week beginning with a smaller CC&S update on Saturday and ending with an HGAM on Monday. Operations will continue at the rate of two CC&S updates, two structurally similar zenith/nadir data taking pairs and two HGAMs each week through the first week in August. The Phase III Mission Plan Guidelines, Subsection 3, below, describe each week's sequences.

1. Engineering tests. In order to verify proper functioning of all spacecraft systems prior to beginning the weekly Phase III data taking cycle, spacecraft engineering tests are required immediately following the last of the Sun occultations. A third solar array test must be performed in order to determine whether the severe Sun occultation environment has degraded the power output from the panels. Panel degradation could impact all future mission planning.

An engineering HGAM is also planned for the first week in June in order to monitor the first turn-on of the science instruments and to synchronize the CC&S and DAS clocks. While this maneuver is designed primarily to obtain high-rate engineering data (33 1/3 bps) during the science turn-on, the scan platform will have been pointed in a direction to allow high-rate (8.1 kbps) planetary data taking around periapsis.

2. Roll axis star references. Two, and possibly three, different stars will be used for roll axis reference throughout different periods of Phase III operations. Data taking will begin with the star Arcturus (Gamma Draco) as the roll reference star until it moves out of the star tracker's field of view in late June. Planetary viewing at periapsis is optimized by use of Arcturus because the clock angle constraints are not as great. July data taking will continue by use of the star Canopus which has been the primary roll reference star of the mission. The star Vega may be used for the first week in August in order to again optimize near-periapsis viewing geometry.

3. Phase III Mission Plan Guidelines

a. General

(1) Tape recorder budget. The mission plan will assume a picture budget as described in Table 2. Any reduction in the number of pictures returned will be due to optional 4-kbps playbacks.

(2) Playbacks and data rates. Playbacks in June shall start prior to and end at Earth occultation and begin again after the spacecraft comes out of the occultation region. Playbacks will be at 4 kbps and/or 8 kbps. Nominally playbacks will begin and end with 4-kbps playback with a minimum of four data rate switches in between. Early in June, playbacks will be designed so as to maximize 4-kbps (4.5 SNR) data subject to maximizing data return.

(3) Timing and structure. The basic timing and structure of individual data taking links will remain unchanged during the week (two zeniths and two nadirs). Data taking links may float to or from discrete times relative to periapsis from one zenith (or nadir) to the next data taking revolution in the same week. The order of the links must remain the same.

(4) Ground-commanded pictures. Ground-commanded BA-frame pairs will be available on all zenith revolutions. Such pictures will automatically reduce the number of pictures from the end of the nadir sequence. All slews for such

ground-commanded frames will be preplanned and CC&S-controlled.

(5) CC&S updates. There will be two CC&S updates per week. One will be major (6 hours) and will load the basic sequence. The minor update (4 hours) for the second pair of revolutions in a week will account for all target and playback rate changes from the previous zenith/nadir pair.

(6) Spacecraft capabilities. The spacecraft will have the following capabilities:

(a) A CC&S routine will be available to calculate the CC&S-DAS synchronization with ±1.1 seconds. This feature will become necessary in July because the DAS must be turned off to insure recharge capabilities after playback maneuvers.

(b) Early tape recorder start capability for single A and B frames. This capability can be exercised for a minimum of one data taking link only.

(c) Late slew (48 seconds after shutter) capability for A and B frames.

(d) The spacecraft attitude control mode, other than during maneuvers, will be three-axis celestial.

(7) Playback maneuver. Maneuvers for tape playback shall be of the minimum off-Sun and minimum turn duration type. It is assumed that all science (including DAS, after June) is off during the maneuver. Maximum battery drain shall not exceed 18 ampere-hours.

(8) Weekly planning. Science inputs for particular Thursday-Sunday data taking pair will be expected 23 days prior to the execution of the Thursday zenith revolution. The mission plan for a week of data taking will be submitted to the Mission Operations System 16 days before sequence execution. In general, the cycle is as described in Fig. 3.

b. Week One. The Phase III Week One mission profile is shown in Fig. 4. The following list contains the mission planning guidelines:

(1) Two CC&S updates (June 7 and 10).

(2) Two similar zenith/nadir pairs (June 8 and 9 and June 11 and 12).

(3) Maneuver spacecraft to point HGA toward Earth for playbacks (June 9 and 12).

(4) Thirty-picture tape recorder capacity.

(5) Playbacks at 4 and 8 kbps, no real-time science.

(6) Data taking in three-axis celestial--Arcturus orientation.

(7) Goldstone 64-m station available every day except June 6 and 13.

c. Week Two. The Phase III Week Two mission profile is shown in Fig. 5. The following list contains the mission planning guidelines:

(1) Two CC&S updates (June 14 and 17).

(2) Two similar zenith/nadir pairs (June 15 and 16 and June 18 and 19).

(3) Two HGAMs (June 16 and 19).

(4) Thirty-picture budget.

(5) Play back 13 pictures at 4 kbps to obtain acceptable IRIS data.

(6) Data taking using Arcturus roll reference.

(7) Goldstone 64-m station available every day except June 13 and 20.

d. Week Three. The Phase III Week Three mission profile is shown in Fig. 6. The following list contains the mission planning guidelines:

(1) Two CC&S updates (June 21 and 24).

(2) Two similar zenith/nadir pairs (June 22 and 23 and June 25 and 26).

(3) Two HGAMs (June 23 and 26).

(4) Thirty-picture budget.

(5) Play back 12 to 13 pictures at 4 kbps to obtain acceptable IRIS data.

(6) Data taking using Arcturus roll reference.

(7) Goldstone 64-m station available every day except June 20 and 27.

e. Week Four. The Phase III Week Four mission profile is shown in Fig. 7. The following list contains the mission planning guidelines:

(1) One CC&S update (June 28).

(2) One zenith/nadir pair (June 29 and 30).

(3) One HGAM (June 30).

(4) Thirty-picture budget.

(5) Play back 12 pictures at 4 kbps to obtain acceptable IRIS data.

(6) Data taking using Arcturus roll reference.

(7) Goldstone 64-m station available every day except June 27 and July 1.

f. Week Five. The Phase III Week Five mission profile is shown in Fig. 8. The following list contains the mission planning guidelines:

(1) Two CC&S updates (July 5 and 9).

(2) Three data taking passes (nadir on July 6 and zenith/nadir on July 9 and 10).

(3) One HGAM (July 10).

(4) Thirty-picture budget (DAS off).

(5) Play back 12 pictures at 4 kbps to obtain

acceptable IRIS data.

(6) Data taking using Canopus roll reference.

(7) July 5 last day to scrub HGAM if attitude control gas criterion violated.

(8) Goldstone 64-m station available except July 8.

g. Week Six. The Phase III Week Six mission planning guidelines provide for the spacecraft to be in the roll drift mode providing no science.

h. Weeks Seven and Eight. The following list contains the Phase III Weeks Seven and Eight mission planning guidelines:

(1) No science recording.

(2) Minimum attitude control gas usage mode (roll drift).

(3) Ranging and doppler emphasized.

(4) DSS 14 unavailable from July 22 through 30 due to maintenance.

i. Week Nine, Option I. The Phase III Week Nine, Option I, mission profile is shown in Fig. 9. The following list contains the mission planning guidelines:

(1) Two CC&S updates (August 2 and 4).

(2) Data taking on zenith/nadir pair (August 3 and 4) and nadir (August 6).

(3) One HGAM (August 7).

(4) Thirty-picture budget.

(5) Battery share during HGAM.

(6) Play back 12 pictures at 4 kbps to obtain acceptable IRIS data.

(7) Canopus acquired for data taking, roll drift after HGAM.

(8) Goldstone 64-m station available except August 5, 6, and 8.

j. Weeks Ten through Eighteen. The following list contains the Phase III Weeks Ten through Eighteen mission planning guidelines:

(1) No science recording.

(2) Celestial mechanics prime--obtain a maximum of doppler and ranging about the solar conjunction (September 7) period.

(3) Record attitude control limit cycle data for celestial mechanics experiment.

(4) Minimum attitude control gas usage mode (roll drift).

k. Week Nineteen. The Phase III Week Nineteen mission profile is shown in Figs. 10 and 11. The following list contains the mission planning guidelines:

(1) CC&S updates (September 9 and 11 and September 14 and 15).

(2) Data taking on nadir/zenith (September 12) and nadir/zenith pair (September 16).

(3) Two HGAMs (September 13 and 17).

(4) Science turnoff during HGAMs to avoid battery share.

(5) Vega acquired for data taking, unwind from second HGAM to roll drift.

(6) Goldstone 64-m station available except September 10.

(7) Play back five pictures at 4 kbps for IRIS data.

l. Week Twenty. The following list contains the Phase III Week Twenty mission planning guidelines:

(1) No science recording.

(2) Limited tracking--DDS 14 committed to Pioneer Project.

(3) Roll drift mode for minimum gas usage, command daily.

(4) CC&S update (October 23) for Week Twenty-One activity.

m. Week Twenty-One. The Phase III Week Twenty-One mission profile is shown in Fig. 12. The following list contains the mission planning guidelines:

(1) CC&S updates (October 23 and 25).

(2) Science recording on nadir/zenith pair (October 26).

(3) HGAM (October 27).

(4) Science turnoff during HGAM to avoid battery share.

(5) Canopus reference for data, unwind to roll drift.

(6) DSS 14 coverage (October 25, 26, 27, and 30).

(7) Play back five pictures at 4 kbps for IRIS data.

NOTE: There is a significant probability that the spacecraft attitude control gas supply will be exhausted before or during Week Twenty-One activities.

n. Week Twenty-Two. The Phase III Week Twenty-Two mission profile is shown in Fig. 13. The following list contains the mission planning guidelines:

(1) CC&S updates (October 30 and November 1).

(2) Science recording on nadir/zenith pair (November 2).

(3) Some science RTS-2 during HGAM (November 3).

(4) Science turnoff during HGAM playback to avoid battery share, science on during HGAM RTS-2.

(5) Vega reference for data.

(6) DSS 14 coverage (November 1, 2, 3, and 5).

(7) Play back five pictures at 4 kbps for IRIS data.

NOTE: This is a contingency plan. There is a high probability that the spacecraft attitude control gas supply will have been exhausted before or during Week Twenty-Two activities.

Table 1. Extended mission objectives and respective experiments

Objective	Experiment
Acquire unique data	Solar conjunction (S-band, CME) High latitude coverage (TV, IRIS, IRR, UVS)
Acquire long-time base data (>90 days)	Meteorology (TV, IRIS, IRR, UVS) Celestial mechanics
Acquire data supplemental to 90-day observations	Repeated spot coverage of areas of interest (TV, IRIS, IRR, UVS) Monitor Viking landing sites (TV, IRIS, IRR, UVS) Earth occultation (S-band) Cooling data (IRR)

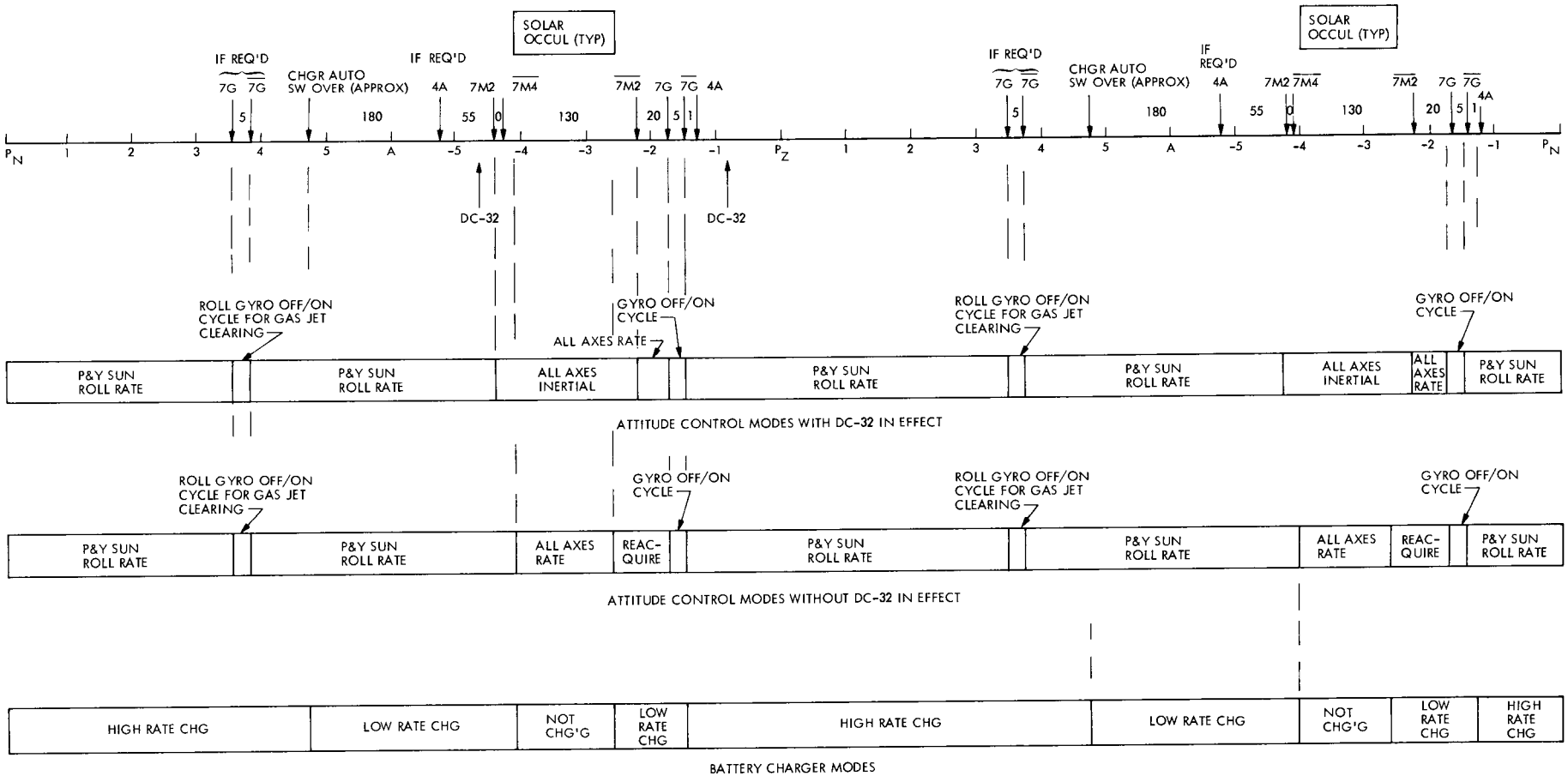
Table 2. Phase III TV picture budget

Week	Playback date	Playback day	Revolution	Earth occultation duration, min	Maneuver duration capability, min[a]	Playback duration, min	Number of picture playbacks at 8 kbps[b]	Number of picture playbacks at 4 kbps (IRIS)[c]	Total
1	6/9	161	418	74	588	514	17	13	30
	6/12	164	424	66	558	492	17	13	30
2	6/16	168	432	53	522	469	24	6	30
	6/19	171	438	41	498	457	25	5	30
3	6/23	175	446	21	474	453	25	5	30
	6/26	178	452	0	462	462	25	5	30
4	6/30	182	460	0	441	441	26	4	30
	7/3	185	466	0	426	426	28	2	30
5	7/7	189	474	0	405	405	29	1	30
	7/10	192	480	0	390	390	30	0	30
6	7/14	196	488	0	375	375	29	0	29
	7/17	199	494	0	360	360	27	0	27
7	7/21	203	502	0	348	348	26	0	26
	7/24	206	508	0	336	336	25	0	25
8	7/28	210	516	0	324	324	25	0	25
	7/31	213	522	0	315	315	24	0	24
9	8/4	217	530	0	306	306	23	0	23
	8/7	220	536	0	300	300	22	0	22

[a] As assumed in Fig. 2, IOM 291KTN-72-207.

[b] Assumes maximum data return required. Any increase in picture playback at 4 kbps reduces picture return at 8 kbps by an equal amount.

[c] As far as overall allocations are concerned, at least 5 pictures are played back at 4 kbps every HGAM.



NOTE: EVENT TIMES FOR 7M2
ZENITH REV 18:16 SCE GMT
NADIR REV 06:16 SCE GMT

Fig. 1. Phase II standard mission day

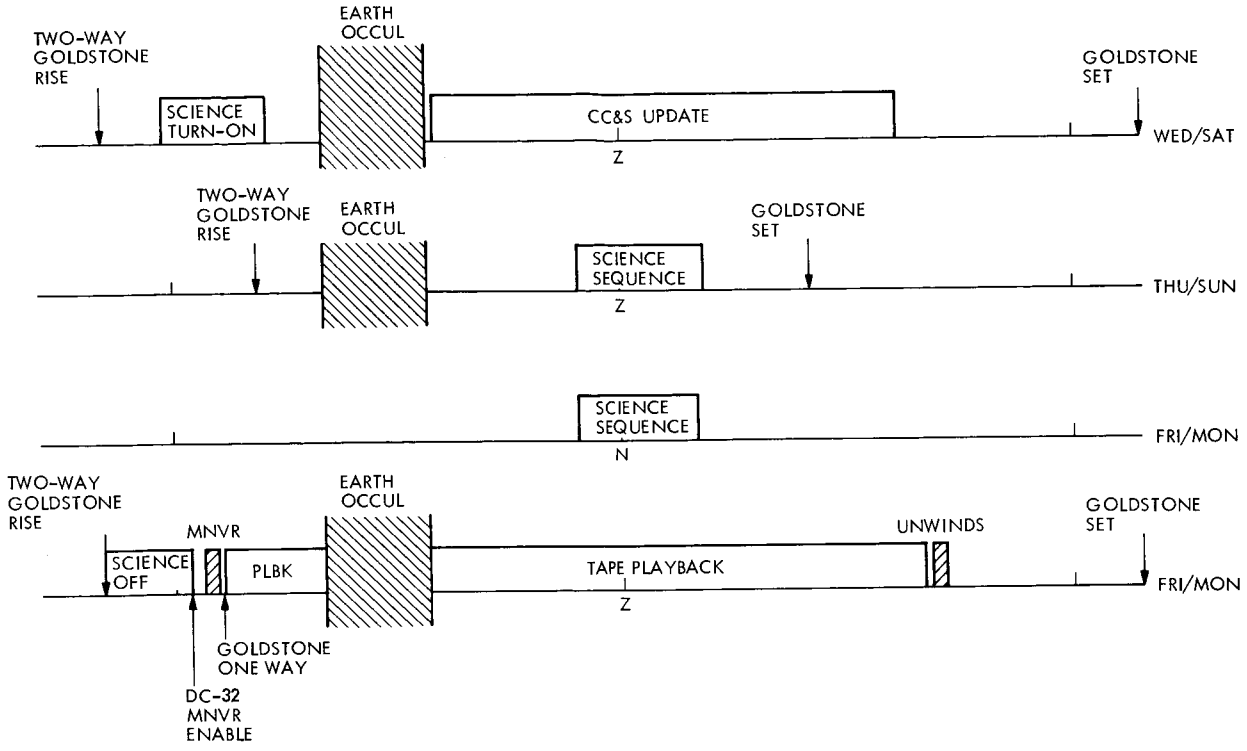


Fig. 2. Phase III weekly cycle

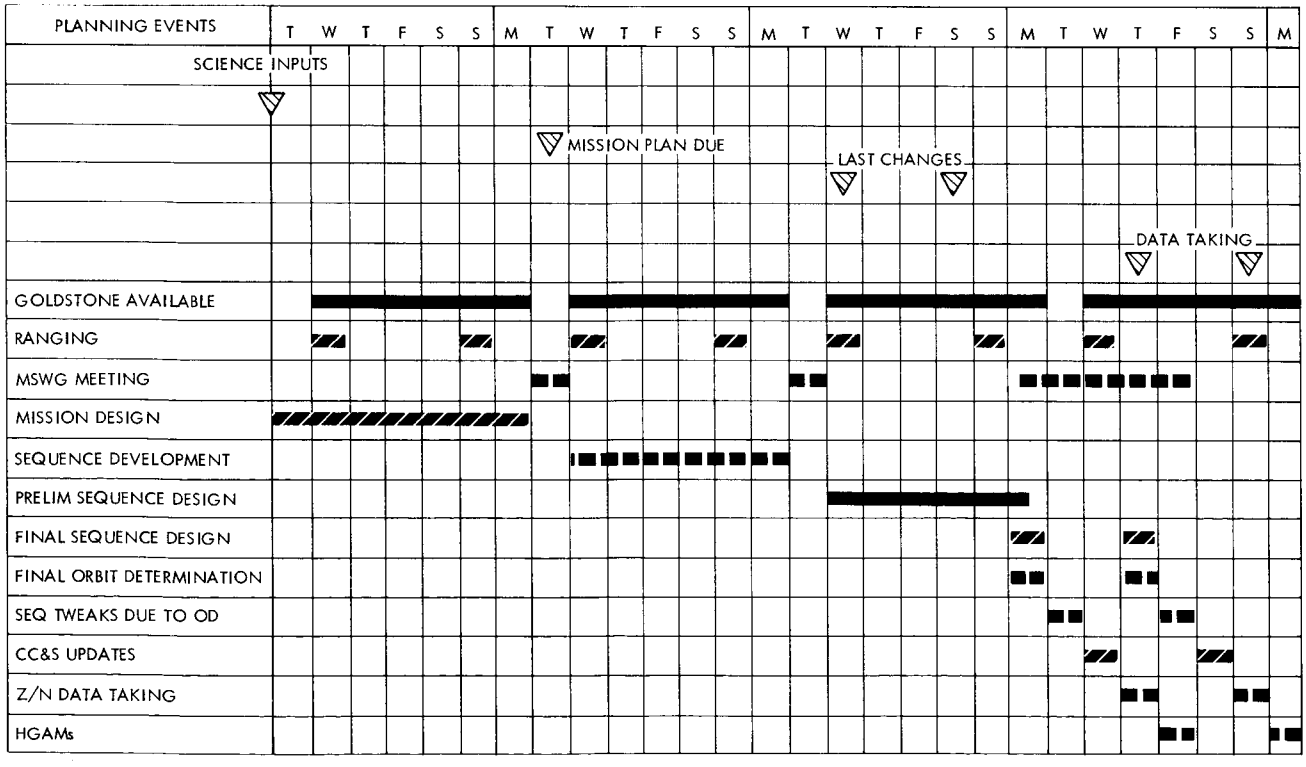


Fig. 3. Extended mission Phase III post-Sun occultation planning cycle

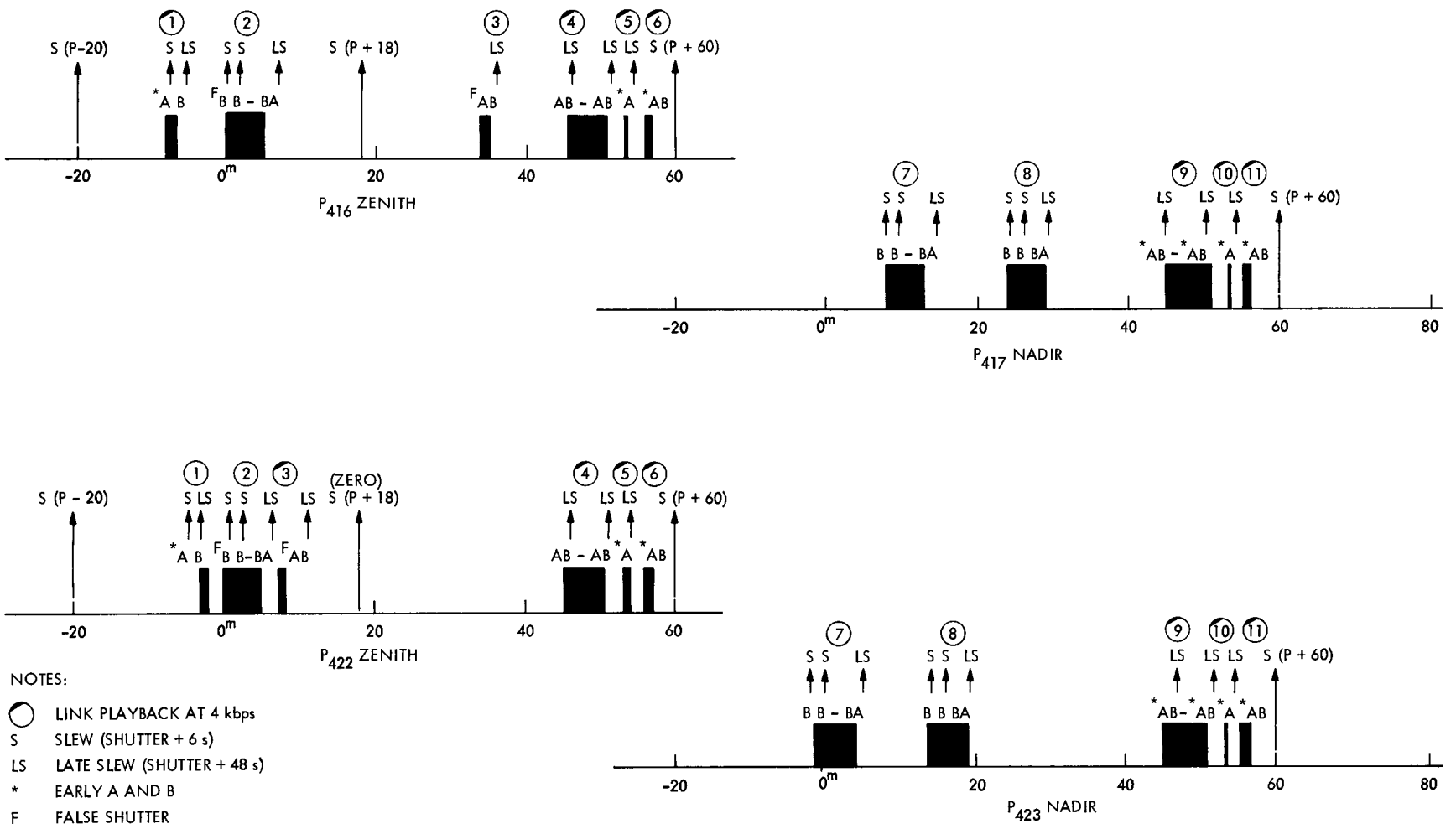


Fig. 4. Phase III Week One mission profile

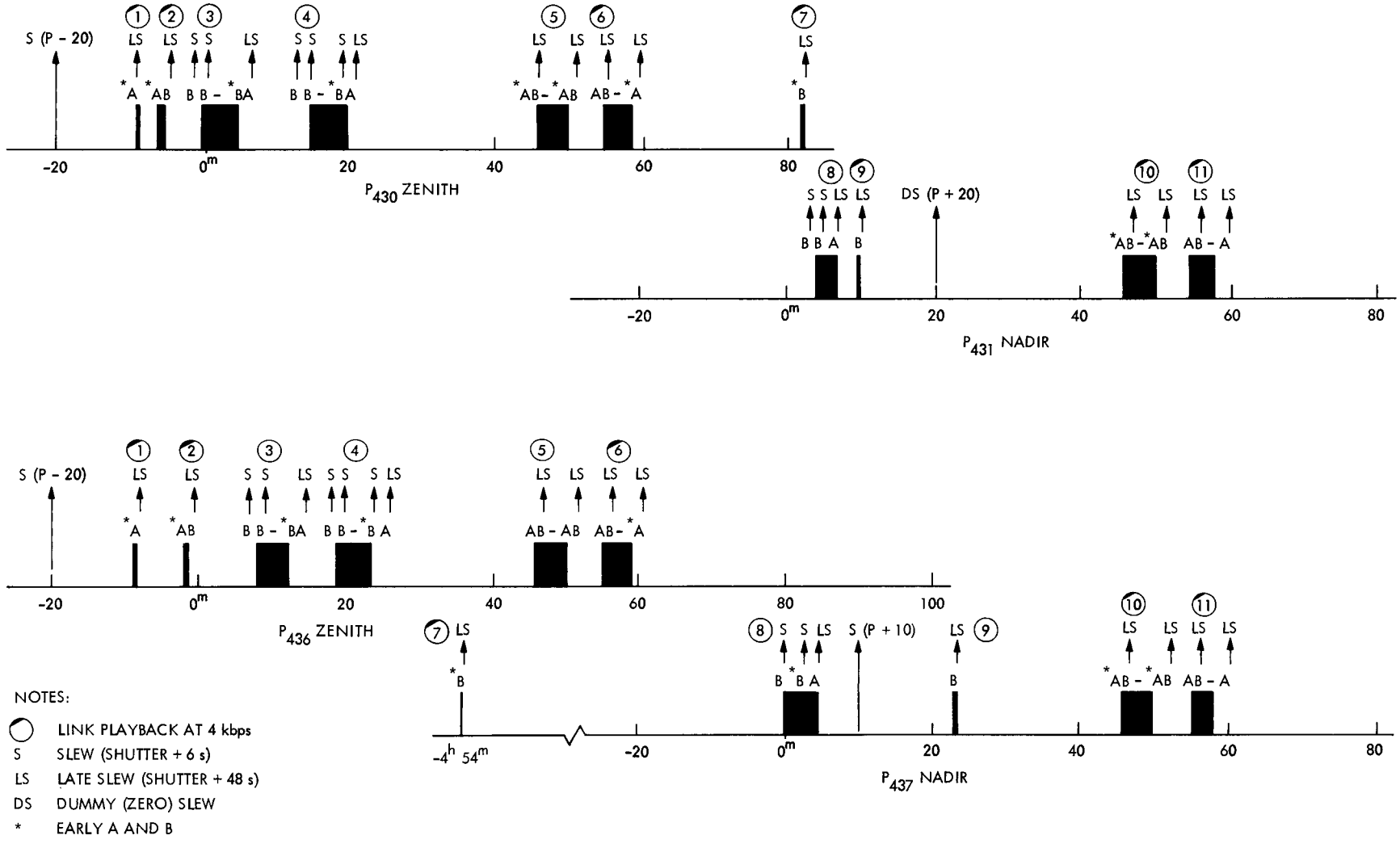


Fig. 5. Phase III Week Two mission profile

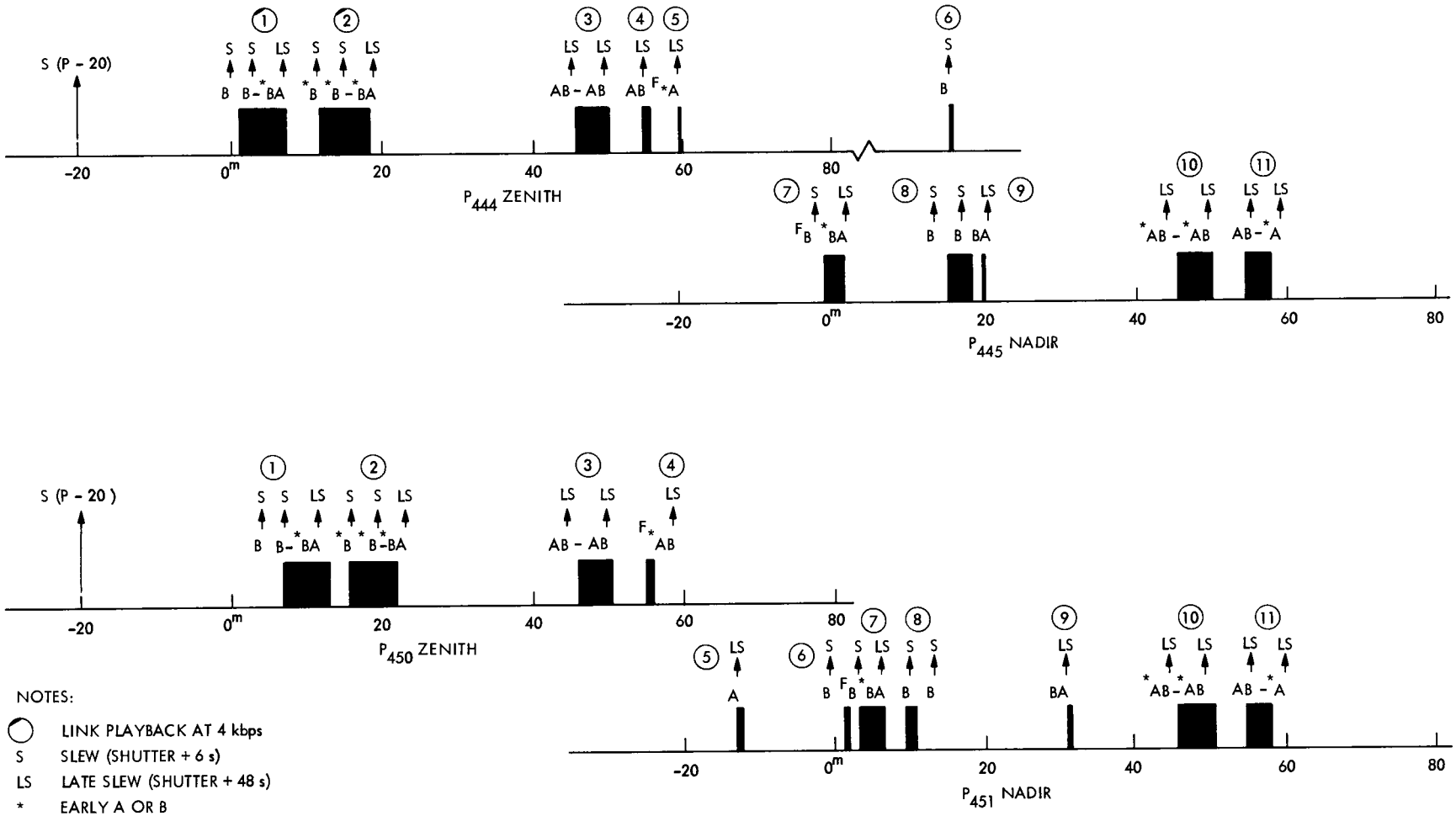
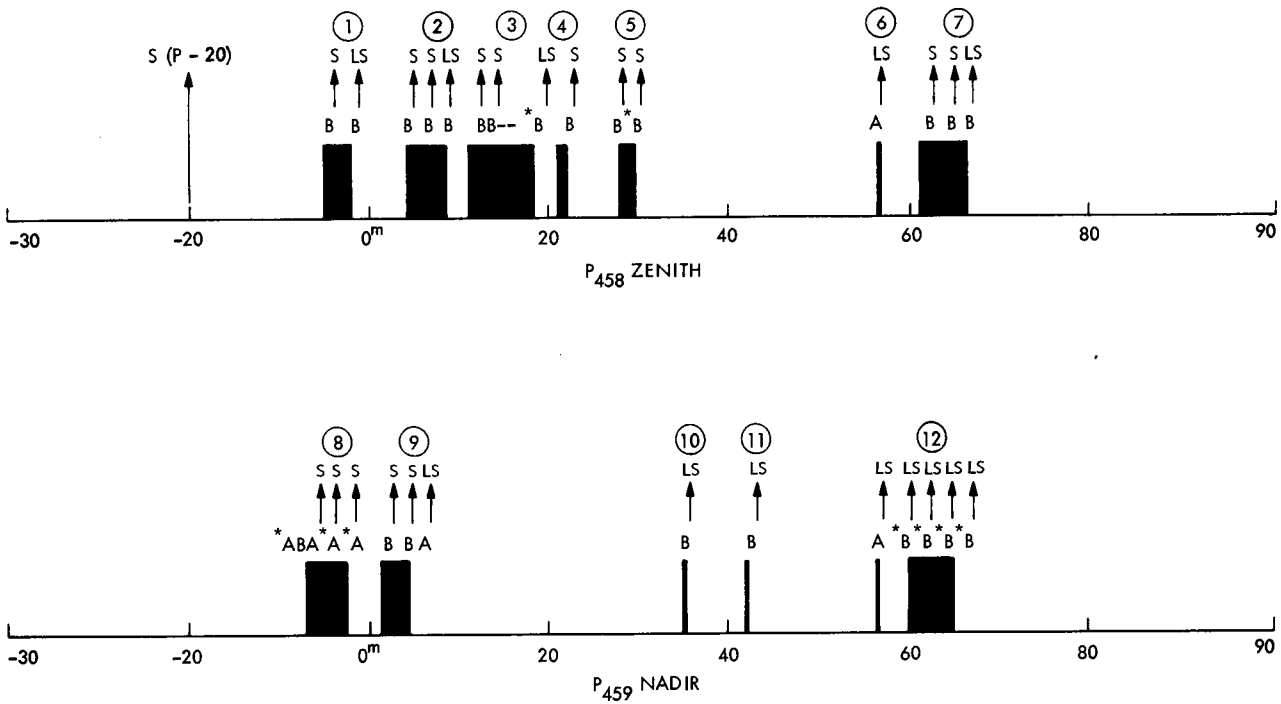


Fig. 6. Phase III Week Three mission profile



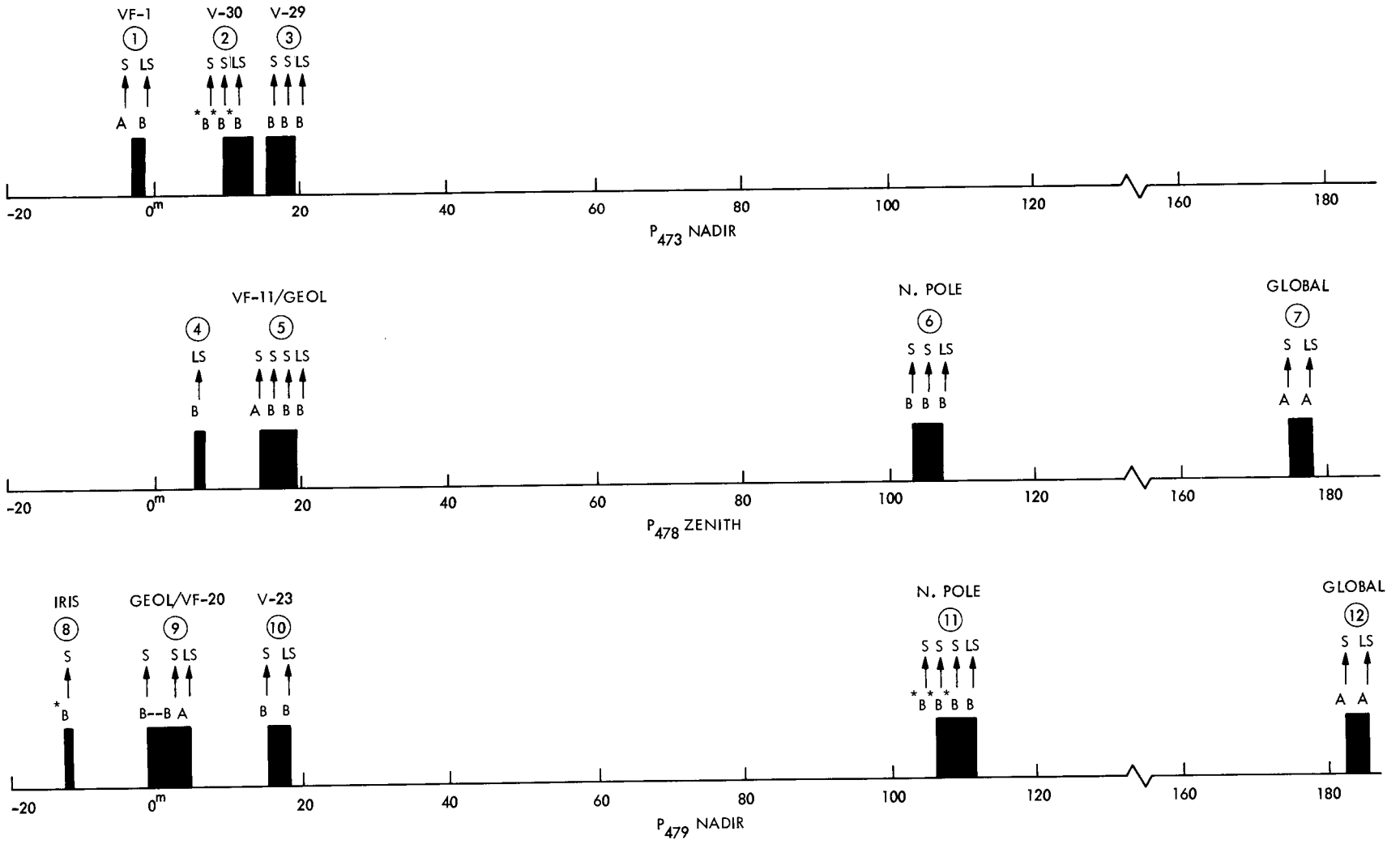
NOTES:

S SLEW (SHUTTER + 6 s)

LS LATE SLEW (SHUTTER + 48 s)

* EARLY A OR B

Fig. 7. Phase III Week Four mission profile



NOTES:

S SLEW (SHUTTER + 6 s)
LS LATE SLEW (SHUTTER + 48 s)
* EARLY A OR B

Fig. 8. Phase III Week Five mission profile

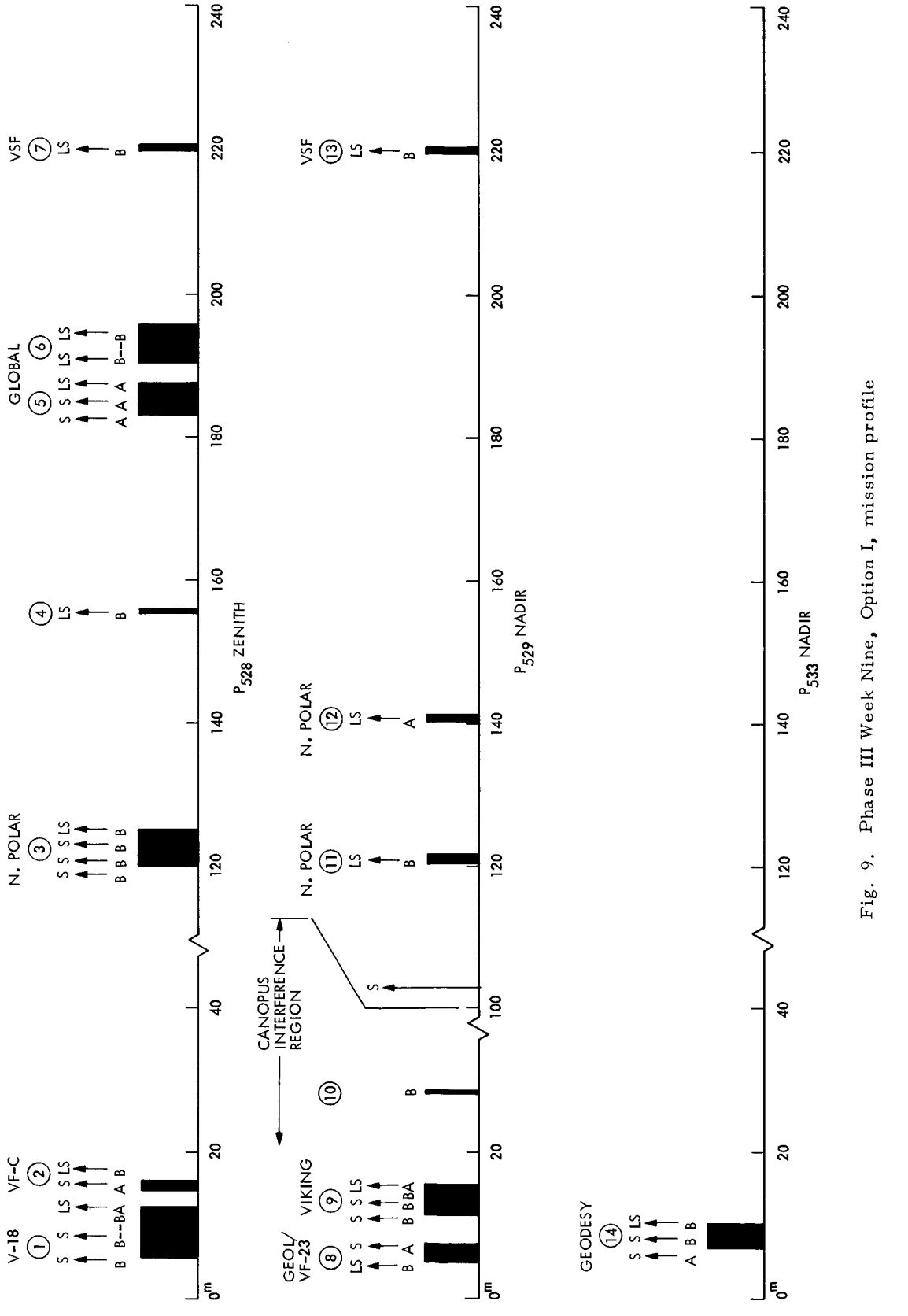


Fig. 9. Phase III Week Nine, Option I, mission profile

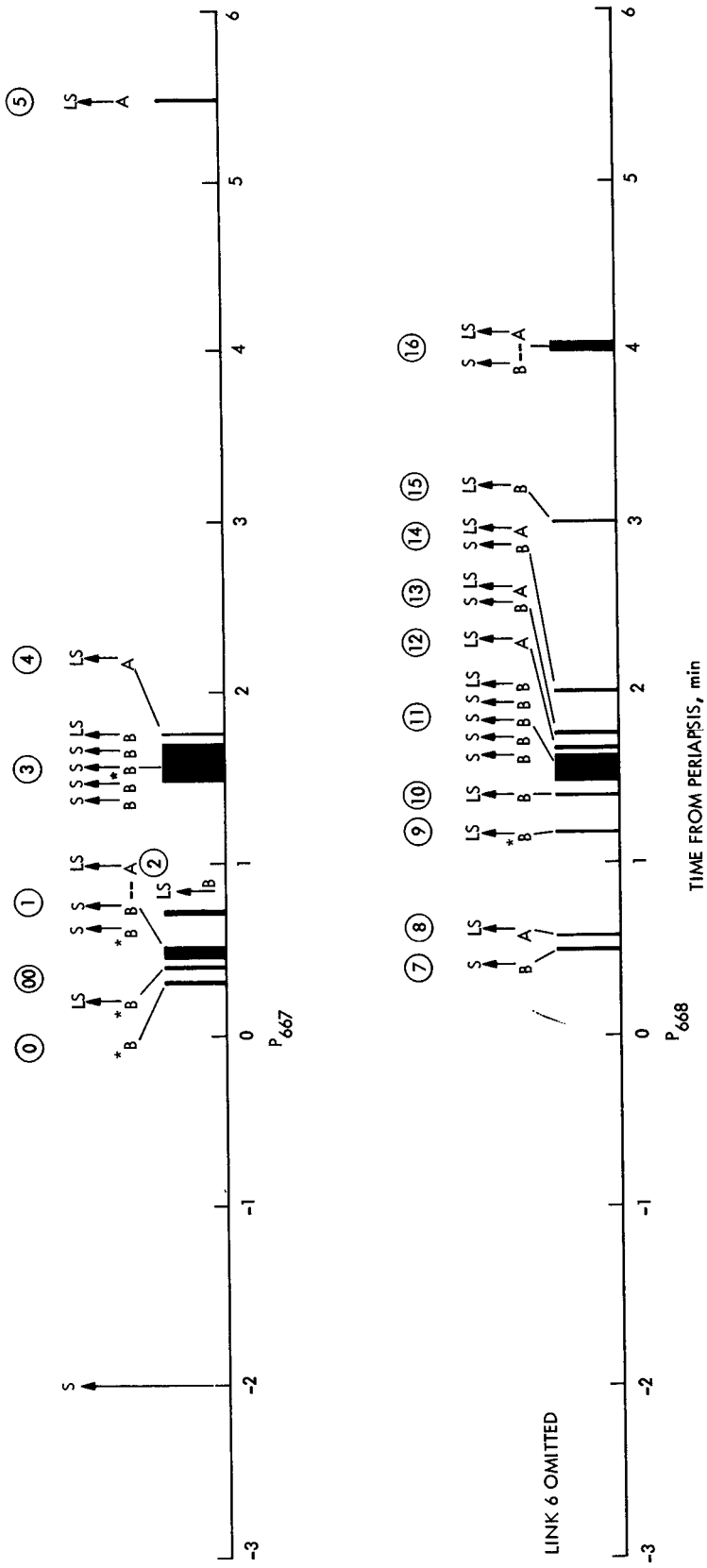


Fig. 10. Phase III Week Nineteen, Revolutions 667 and 668, mission profile

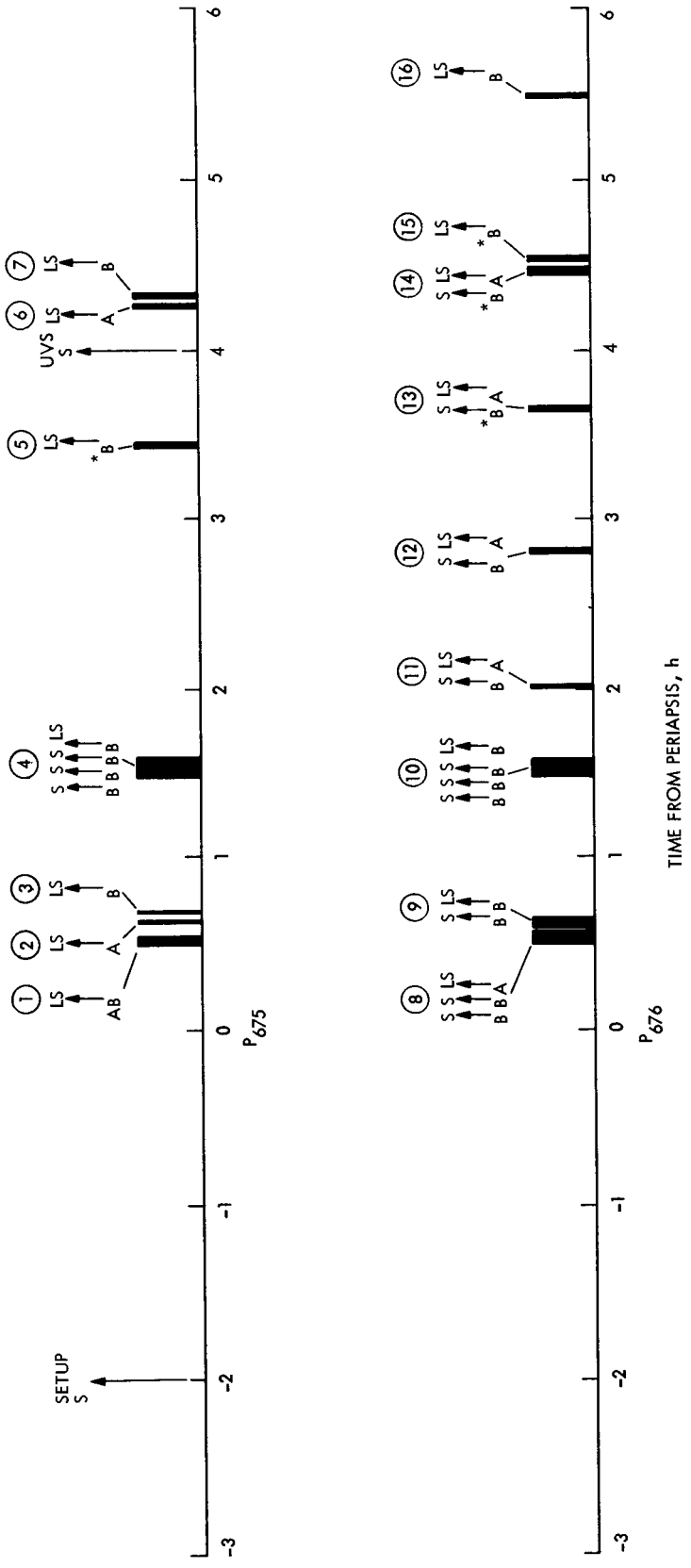


Fig. 11. Phase III Week Nineteen, Revolutions 675 and 676, mission profile

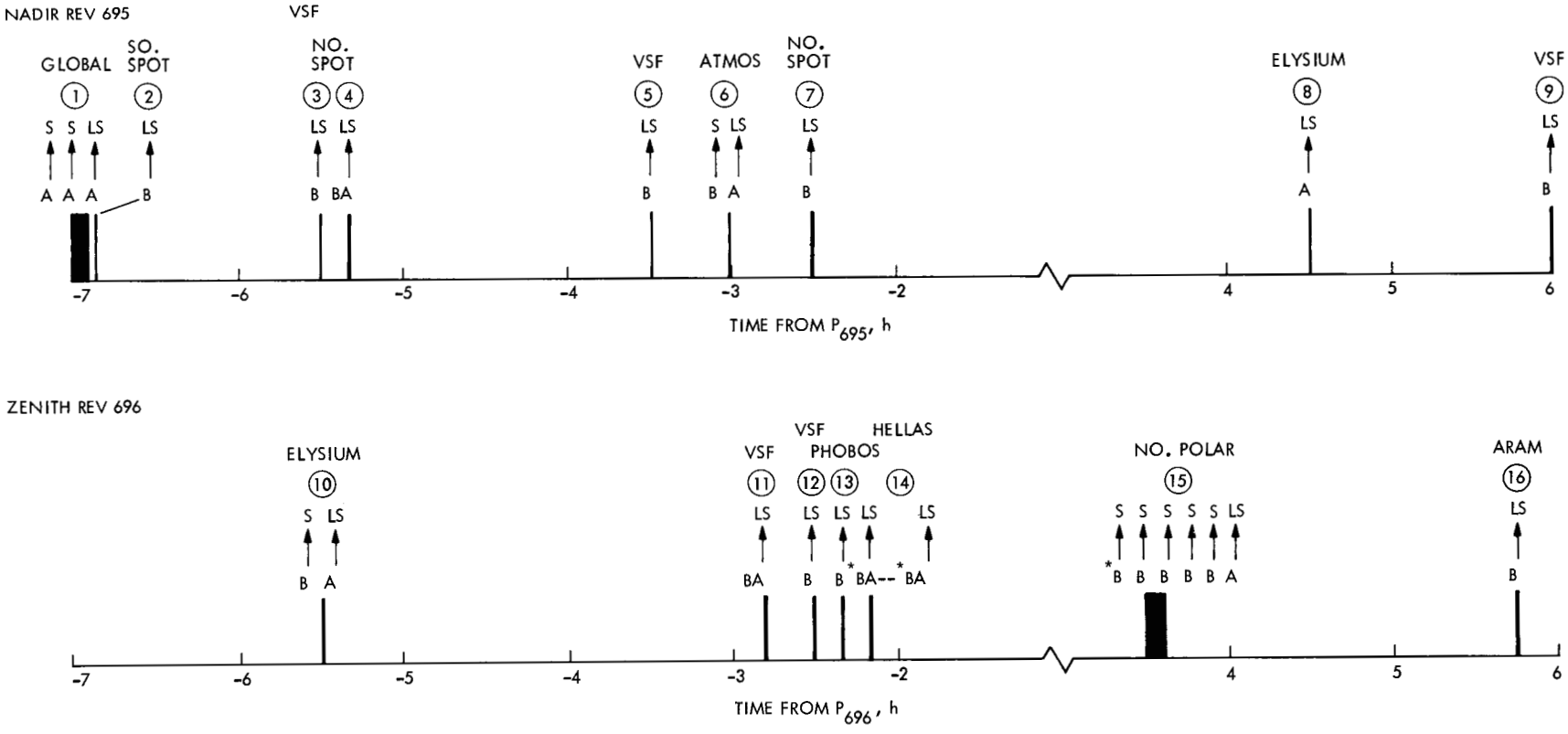


Fig. 12. Phase III Week Twenty-One mission profile

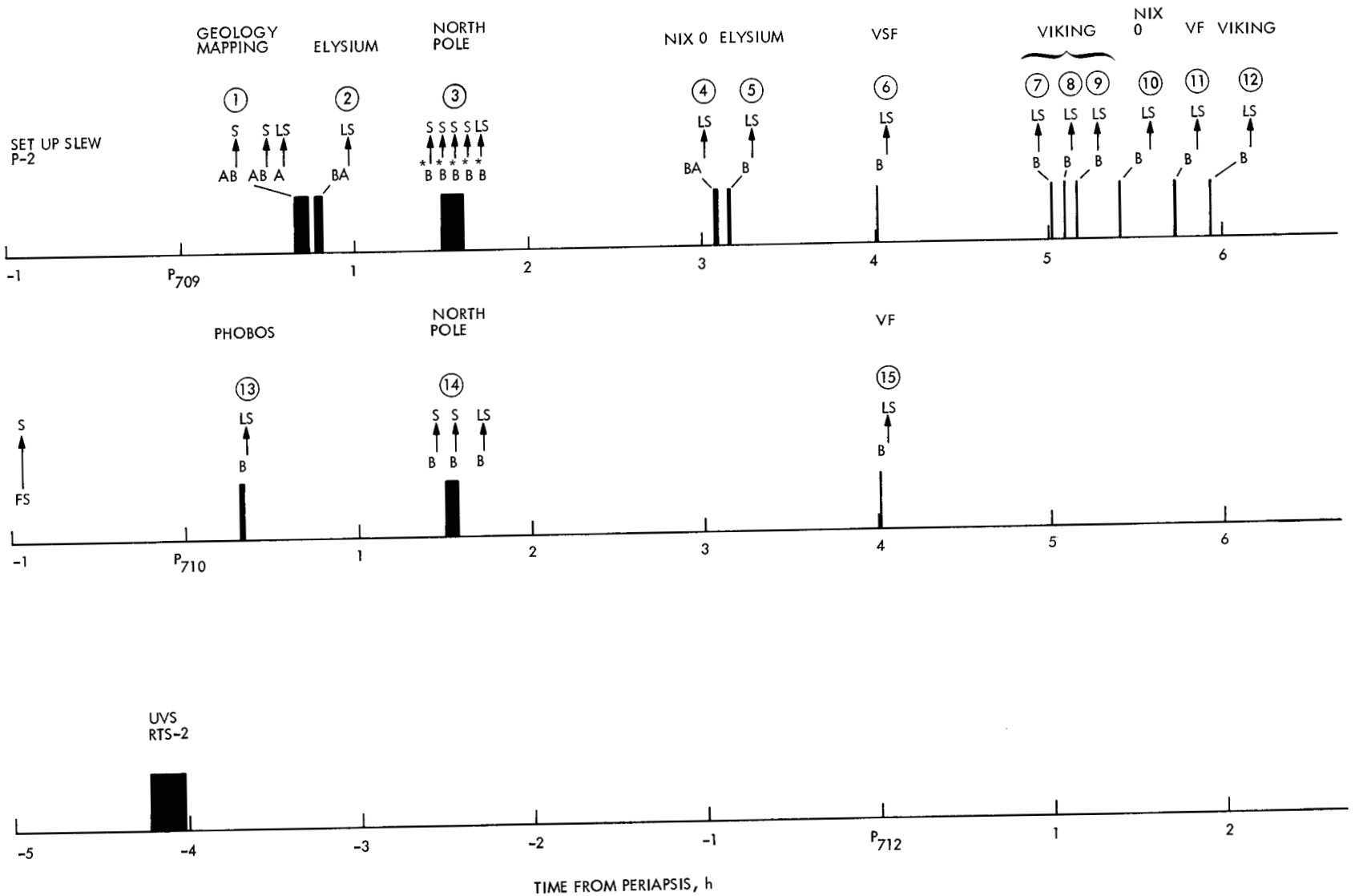


Fig. 13. Phase III Week Twenty-Two mission profile

II. TRACKING AND DATA SYSTEM PLAN AND CONFIGURATION

The Tracking and Data System plan and configuration remained the same as that presented in Volume II of the Tracking and Data System Support for the Mariner Mars 1971 Mission.

III. TRACKING AND DATA SYSTEM FLIGHT SUPPORT

A. General

Tracking and Data System flight support for Mariner 9 extended operations includes the period from the end of the primary mission to the end of the extended operations. In Section I, see Subsection I for the Sun occultation period plan, and Subsection J for the post-Sun occultation period plan. The Sun occultation period plan was placed into operation on April 2, 1972, and the post-Sun occultation period plan was placed into operation on June 4, 1972.

Details of the TDS flight support were obtained from monthly DSN Operations Reports for MM'71. The DSN Operations organization is described in Subsection B. Functional flight support pass chronology data for the DSN are presented in Subsection C. DSN Telemetry, Tracking, and Command Systems analysis and performance evaluations are presented in Subsections D, E, and F.

All times and dates herein are expressed in Greenwich Mean Time (GMT or Z).

B. Network Operations Control

1. General. The DSN Operations Control Team (OCT) controls and operates the DSN in real time to support Flight Project Operations. DSN Operations Control, a mission-independent organization, is headed by the DSN Operations Chief, who is supported by the DSS Operations Controller, GCF Operations Controller, Network Operations Analysis, and Network Operations Support. The real-time operation is supported by two nonreal-time functions, with liaison provided by: (1) the DSN Operations Representative, who represents the DSN organization to the DSN manager and Flight Project Chief of Mission Operations, and (2) the DSN Scheduling Representative, who schedules DSN resources for flight project. On July 1, 1972, the DSN OCT was reorganized as illustrated in Fig. 14. The DSN Operations organization insures that standardized methods will be used for support of each flight project, while at the same time maintaining the capability for responding in real time to nonstandard anomalies and emergencies.

2. Responsibilities. DSN operational control is provided by the mission-independent DSN Operations organization. Functional responsibilities of the DSN OCT are as follows:

(1) Operate the network to meet the requirements of several flight projects simultaneously.

(2) Operate the DSN Monitor System.

(3) Operate the DSN in support of project simulation activities.

(4) Operate the DSN in support of compatibility testing.

(5) Support maintenance of the operational network.

(6) Produce the Original Data Records (ODRs).

(7) Perform real-time (through the 7-day schedule) allocation of resources based on guidelines of the DSN Network Allocation System.

(8) Respond to the requirements of TDS/flight project interface documentation.

(9) Perform, in real time, analyses of telemetry, tracking, and command operations to insure that the network has met its commitment.

3. DSN Operations Control Team Organization. The operating positions and organizational responsibilities of the key members of the OCT are described in the following subsections.

a. DSN Operations Chief. The DSN Operations Chief (OC) is responsible to the DSN Operations Manager for the overall direction of DSN operations and is specifically responsible for proper operation of the DSN resources committed to the Project. The DSN OC directs and coordinates the activities of the DSS Operations Controller, GCF Operations Controller, Network Operations Analysis, and Network Operations Support in the real-time operation of committed resources. The DSN OC is the controlling interface for the DSN with the Project Chief of Mission Operations (CMO), and the Mission Control and Computing Center (MCCC) Operations Controller (OPSCON). The DSN OC coordinates the isolation of equipment or procedural problems and any required corrective or contingency actions. The DSN OC controls the real-time configuration of the DSN and resolves any conflicts in the use of DSN resources that arise during periods of operational support. He is responsible for the coordination of end-to-end systems data flow. He is also responsible for keeping the flight projects advised of DSN status.

b. DSS Operations Controller. The DSS Operations Controller provides real-time direction and control of DSS operations. He controls

committed DSS resources and the real-time configuration of DSS equipment and procedures.

c. GCF Operations Controller. The GCF Operations Controller directs and controls the operations of the GCF in real time. He coordinates circuit requirements with the NASA Communications Network (NASCOM) and controls the real-time configuration of the GCF.

d. Network Operations Analysis.

(1) Tracking System Analyst. The real-time Tracking System Analyst determines the performance of the Tracking System and recommends corrective action in case of failure or substandard performance. He is also responsible for the generation of tracking predictions and providing real-time recommendations in support of spacecraft acquisitions and tracking. He provides a real-time technical interface with the Project navigation area and Project telecommunications analyst.

(2) Telemetry System Analyst. The real-time Telemetry System Analyst determines the performance of the Telemetry System and recommends corrective action in case of failure or substandard performance. He is also responsible for the generation of DSN telecommunication predictions and provides real-time recommendations to isolate the problem in the case of any nonstandard acquisition. He provides a real-time technical interface with the Project telecommunication analyst.

(3) Command System Analyst. The real-time Command System Analyst is responsible for monitoring and analyzing the operation of the DSN Command System. He is responsible to the DSN Operations Chief for defining, isolating, and recommending solutions to problems that occur in the DSN Command System. In addition to this monitoring function, the Command System Analyst generates and transmits the standards and limits, configuration, and test commands utilized at the Deep Space Stations. The Command System Analyst determines the DSN data record outages and coordinates the required playback from the DSS digital ODR. He provides a real-time technical interface with the Project Command Team.

(4) Monitor System Analyst. The Monitor System provides the capability for sensing certain characteristics of the various elements of the network and for processing and displaying these data for use by the network operations personnel. Monitor data are used for determining status and configurations, for guidance in directing network operations, for furnishing alarms of nonstandard conditions, and for analysis of quality and quantity of data provided to the Project. The real-time Monitor System Analyst is responsible for the following tasks:

(a) Maintain continuous operational control of the Monitor System.

(b) Monitor and analyze the performance of the Monitor System.

(c) Gather and validate standards and limits for all network systems.

(d) Maintain continuous interface with the Operations Chief.

(e) Perform computer I/O functions necessary for the support of system operation.

(f) Participate in system tests and analyze results.

(g) Maintain system logs and records.

(h) Generate pass folder and transfer to ODC.

(i) Generate postpass reports.

(j) Maintain status display board.

(k) Monitor technical information service.

e. Network Operations Support. Network Operations Support is responsible to the DSN Operations Chief for real-time and near-real-time operational support functions that are performed by elements of the DSN Scheduling and Discrepancy Reporting Group and the DSN Operational Data Control Group. These functions include real-time scheduling, sequence of events generation, data traceability and reporting, and discrepancy reporting.

4. Nonreal-time operational roles

a. DSN Operations Representative. A DSN Operations Representative is appointed for each flight project utilizing the DSN. His function is to represent the mission-independent DSN operations organization to (1) the DSN Manager and his DSN Support Team, and (2) the Flight Project Chief of Mission Operations and his mission operations team.

Responsibilities are defined for the periods before and after formal transfer of operational responsibility from the DSN Manager to the DSN Operations Chief. This transfer will nominally occur approximately 6 months prior to launch. Responsibilities before operational transfer are as follows:

(1) Provide liaison between the DSN Manager and the DSN OC.

(2) Act as operations advisor to the DSN Support Team.

(3) Flag conflicts between planned activities and DSN operational capabilities; assist in resolving these conflicts.

(4) Review integration schedules prepared by the support team; insure that all milestones

are in agreement with DSN operational implementation schedules.

(5) Interpret DSN operational philosophy, capabilities, and requirements to other DSN/TDS elements and to flight project mission operations teams.

Responsibilities after operational transfer are as follows:

(1) Act as DSN operations advisor to the flight project mission operations team.

(2) Participate in mission operations planning meetings; flag conflicts between planned activities and DSN operational commitments; assist in resolving these conflicts.

(3) Coordinate planned activities with the DSN operations organization; transmit necessary instruction and information to the DSN OC.

(4) Act as operations advisor to the DSN Manager in planning and developing support for nonstandard operations.

(5) Provide sequence of events inputs, necessary for flight project support, to the DSN Scheduling Group.

b. DSN Scheduling Representative. Each major project that uses the DSN will be assigned a Scheduling Representative by the DSN Scheduling Office. The duties and responsibilities of the Scheduling Representative are as follows:

(1) Be responsible for scheduling, within the framework of the DSN Network Allocation System, all Project activities and Project-related DSN activities from the establishment of DSN configuration control at (nominally) launch minus 6 months until the end of the operational mission and for the duration of extended mission operations, if any.

(2) Following the establishment of DSN configuration control, interface with the DSN Operations Representative for all special operational scheduling requirements and for Project-related DSN Operations Control Team scheduling requirements.

(3) Interface with the supervisor of DSN scheduling for overall and Project-related ground rules, priorities and constraints.

C. Flight Support Pass Chronology

1. General. Tracking and Data System flight support included in this volume for Mariner 9 spacecraft extended operations commenced with Pass 308 at 16:44 on April 1, 1972 (Day 92), and continued through the end of the mission (spacecraft demise) on October 27, 1972 (Day 301). For a more complete description of the MM'71 Mission Plan, see Project Document PD 610-16, NP-71-4-22A.

2. Pass chronology data. A total of 162 passes (207 total tracks) were supported during the 6 months and 27 days of this period, during which 8573 commands were transmitted to the spacecraft.

General performance of all DSN systems supporting the MM'71 Mission was excellent. DSN pass chronology activity is summarized in Table 3. Details of the pass chronology are presented in the appendix. Only anomalies affecting the prime data source (the station whose telemetry HSD were being processed by the Central Processing System (CPS) or, if the CPS was not supporting, the station that was two-way during track overlaps) are given in the pass chronology on a pass-by-pass or track-by-track basis. Each anomaly is prefaced by a facility or system identifier, such as DSS, GCF, or CPS. Anomalies are listed by item number and time of failure and are limited to items that significantly affected mission operations during scheduled DSN flight support (interruptions of real-time data flow or actual data loss to the Project for 5 minutes or longer).

Configuration deviations that restricted the Project from conducting normal or planned operations commensurate with scheduled DSN support were considered significant and will be found in the pass chronology. Comments listed under deviations or anomalies in the pass chronology were based on real-time observations and indications and did not necessarily reflect nonreal-time followup on items requiring further investigation.

All data outages were considered as real time and recoverable, and data outage times were considered the same as system or equipment down times, unless otherwise indicated.

D. DSN Telemetry System Analysis and Performance

Residual data plots for March 1972, shown in Volume III of the TDS Support for the MM'71, include end of primary mission for all stations. Residual data plots of SNR levels, uplink (UL) signal levels, and downlink (DL) signal levels during this reporting period are shown in Figs. 15 through 21. Values plotted were taken at meridian crossing for each pass. A Statistical analysis on absolute data values yielded results detailed in Table 4.

E. DSN Tracking System Analysis and Performance

1. Interface with experimenters

a. Super Mu Ranging System. A Super Mu Ranging System was placed in operation by the Mariner Project during August, which increased ranging acquisitions to approximately 25 per pass. Real-time support was provided by the Tracking System Analysis Group during this high activity period without incident.

b. Very long baseline interferometry. During this period, several very long baseline interferometry (VLBI) experiments were conducted which required several tuning periods during a single pass, resulting in a large percentage of bad data being recorded.

2. TDH data received and processed

a. TDH system. The tracking system gathered and recorded tracking data and transmitted it to the Mission Control and Computing Center (MCCC) for use in support of the spacecraft navigation function. As these data were received in the MCCC, it was the responsibility of the Tracking System Analysis Group to validate, edit, store, and process these tracking data so that they may be passed on to the Navigation Group and other users of the DSN.

b. Prime DSS coverage. DSSs 14 and 62 were the prime DSN stations for the Mariner mission during the months of April and May; DSS 14 was prime and DSS 62 was backup during June; and DSS 14 was prime for the remainder of the mission. Due to 360/75 computer software problems, the radio metric data accountability was not 100% reliable for this reporting period.

c. Summary. Radio metric data received and processed during this period were generally of good quality with very few outages. All committed data requirements were met without incident.

3. Predicts

a. Orbital predicts. Orbital predicts sets, each covering four days, were generated and transmitted to each DSS. Updates and changes were made as needed and displayed on the closed-circuit television (CCTV).

b. Special predicts. Each set of orbital predicts included a center-of-Earth predicts to enable the Command System to obtain round-trip light time (RTLT) data.

c. Summary. Predicts for extended operations were both timely and accurate. All adjustments and biases were made in real time to account for spacecraft events having effect on DSN frequencies.

4. Occultations. Special support was provided Mariner 9 for the second occultation phase which began in May and was completed in June.

The experiment observed the effects of refraction on the S-band signal while the spacecraft radio beam was traveling through the atmosphere of Mars before and after each occultation. The Tracking System was assigned the task of acquiring, processing, and delivering radio metric data to the occultation experimenters.

The TDH Subsystem was prime and the radio metric data were taken at 10- and 1-second sample rates. The data were placed on the real-time Master File Program (MFP), processed, and a project tracking tape (PTT) was written covering the occultation data requirements. The PTT was then passed to the occultation experimenters. A total of 51 TDH occultation PTTs were delivered to the occultation experimenters during this second occultation phase of the mission.

The DTS was used as a supplementary system. Radio metric data were gathered at DSS 14 on the DTS computer. The Tracking System Analyst sent probes to DSS 14 (a request made from the 360/75 computer in the MCCC to the DTS computer at DSS 14 for a specific amount of data) to send data to the MCCC for processing. The sample rate of the DTS data was 10 samples per second, thus providing the occultation experimenters a massive amount of data.

Predicts for the second occultation phase of the mission consisted of synlo predicts, planetary predicts, plus doppler and angle predicts. A hard copy of these predicts was provided to the occultation experimenters for each Goldstone occultation event.

Both analog and digitized open-loop data were recorded beginning 9 minutes prior to occultation entry until after actual observed entry, and from 2 minutes prior to occultation exit until 8 minutes after exit.

5. Tracking system data analysis. The Tracking System Analysis Group operated a real-time DSN 360/75 pseudoresidual program that monitored tracking prediction quality as well as tracking data quality. To monitor significant events, hand plots were prepared and displayed on the predict status CCTV.

Pseudoresiduals were computed for each station pass and displayed on CCTV and on teletype at the end of each pass. The average value of the residuals for each pass was computed and plotted. Figure 22 illustrates the average two-way doppler residual and doppler noise per pass at the beginning of extended operations. During the later phases of the mission, however, uncertainty in the predicts developed as the spacecraft neared periapsis and the doppler residuals began showing rather high values. As a result of these high residual values, the average doppler residuals and doppler noise plots for the later phases of the mission are not included.

F. DSN Command System Analysis and Performance

1. Command activity. Except for the months of June and October, command activity in support of the orbit of Mariner 9 was significantly decreased during this report period.

Since the beginning of the Mariner Mars 1971 Project, a cumulative total of 45,805 commands has been transmitted to the spacecraft. Table 5 shows the total number of commands transmitted by each DSS as of October 27, 1972. A summary of command activity during the extended operations phase is presented in Table 6.

2. System performance. The DSN Command System performed well with no aborts during April and May, three each in June and July, one in August, two in September, and eight in October when 2241 commands were transmitted.

Table 3. DSN flight support/extended operations: Mariner 9 pass chronology from end of primary mission to end of extended operations

Month (1972)	Period	DSS	Coverage (tracks)	Ranging		Spacecraft commands transmitted	Remarks
	Days - Passes			μ	τ		
Apr	Apr 1 to May 1	14	19	11		128	Predicts were both timely and accurate. All adjustments and biases were made in real time to account for spacecraft events having effect on DSN frequencies. Radio metric data received and processed during this period were generally of good quality with very few outages.
	(Days 092-122)	62	1			1	
			—	—		—	
	Pass 308 to 337	Apr					
	(30 passes)	total	20	11		129	
May	May 1 to Jun 1	14	27	15		79	Radio metric data received and processed during this period were generally of good quality with very few outages. All committed data requirements were met without incident. The Tracking, Telemetry, and Command Systems performed nominally during this period.
	(Days 122-153)	62	14			42	
			—	—		—	
	Pass 338 to 368	May					
	(31 passes)	total	41	15		121	
Jun	Jun 1 to Jul 1	11	1	6		0	Special support was provided to Mariner 9 for the second occultation phase which began in May and was completed in June. The Tracking Data Handling Subsystem (TDH) and the Digital Tracking Subsystem (DTS) were both used to process the data gathered during the Goldstone occultation events.
	(Days 153-183)	12	4			0	
		14	26			4192	
	Pass 369 to 398	62	7			73	
	(30 passes)	Jun	—	—		—	
		total	38	6		4265	
Jul	Jul 1 to Aug 1	12	1	12		3	The Tracking, Telemetry, and Command Systems performed nominally during this period, and all committed data requirements were met.
	(Days 183-214)	14	17			782	
			—	—		—	
	Pass 399 to 429	Jul					
	(31 passes)	total	18	12		785	
Aug	Aug 1 to Sep 1	14	21	16		781	A Super Mu Ranging System was placed in operation by the Mariner Project during August, which increased ranging acquisitions to approximately 25 per pass. Real-time support was provided by the Tracking Analysis Group without incident. Telemetry data not available during majority of this period, due to effects of superior conjunction.
	(Days 214-245)						
			—	—		—	
	Pass 430 to 460	Aug					
	(31 passes)	total	21	16		781	
Sep	Sep 1 to Oct 1	12	1	24		0	The network systems performed nominally during this period, and all committed data requirements were met without incident. Telemetry data not available during majority of this period, due to effects of superior conjunction.
	(Days 245-275)	14	26			229	
			—	—		—	
	Pass 461 to 490	Sep					
	(30 passes)	total	27	24		229	

Table 3 (contd)

Month (1972)	Period	DSS	Coverage (tracks)	Ranging		Spacecraft commands transmitted	Remarks
	Days - Passes			μ	τ		
Oct	Oct 1 to 27	11	2	12		0	Even though the occultation events and the very long baseline interferometry experiment taxed the Tracking System heavily, the system performed nominally and all committed data requirements were met without incident.
	(Days 275-301)	12	5			9	
		14	27			2170	
	Pass 491 to 517	41	3			26	
	(27 passes)	51	5			45	
			—	—		—	
		Oct total	42	12		2250	
	Overall total Apr 1 to Oct 27, 1972		207	96		8560	

Table 4. DSN Telemetry System analysis for extended operations

Period (1972)	Number of readings	Percent within 1.0 dB of prediction	Percent within 0.3 dB of prediction	Arithmetic mean, dB	Variance, dB	Standard deviation, dB	Eng Sci	Most often observed value, dB	Parameter
Apr 1 to May 1 (Days 092-121) 30 days total	20	85.00	25.00	0.6	0.2	0.4	Eng	0.8 to 0.9	SNR
	17	65.00	18.00	0.8	0.3	0.5	Both	0.5 to 0.6	Downlink signal level
May 1 to Jun 1 (Days 122-152) 31 days total	21	81.00	19.00	0.6	0.12	0.35	Eng	0.5 to 0.6	SNR
	21	38.00	9.00	1.2	0.4	0.6	Both	0.9 to 1.0	Downlink signal level
Jun 1 to Jul 1 (Days 153-182) 30 days total	25	100.00	28.00	0.5	0.1	0.3	Eng	0.8 to 0.9 and 0.9 to 1.0 equally	SNR
	25	88.00	40.00	0.4	0.2	0.4	Both	0.1 to 0.2 and 0.3 to 0.4 equally	Downlink signal level
	7	86.00	29.00	0.6	0.2	0.5	Sci	0.5 to 0.6	SNR
Jul 1 to Aug 1 (Days 183-213) 31 days total	12	50.00	5.80	0.9167	0.0924	0.3040	Eng	0.9 to 1.0	SNR
	12	91.70	8.30	0.4917	0.0663	0.2575	Both	0.4 to 0.5 and 0.5 to 0.6 equally	Downlink signal level
Aug 1 to Sep 1 (Days 214-244) 31 days total	---------- Meaningful samples not available ----------								
Sep 1 to Oct 1 (Days 245-274) 30 days total	---------- Meaningful samples not available ----------								
Oct 1 to 27 (Days 275-301) 27 days total	22	91.00		0.5682	0.1166	0.3414	Eng	0.4 to 0.5	SNR
	22	77.00	50.00	0.5318	0.2689	0.5186	Both	0.4 to 0.5	Downlink signal level

Table 5. Cumulative command activity at end of mission

Activity	DSS					
	12	14	41	42	51	62
Commands	3315	9192	3385	65	154	29694
Percent down[a]	3.93	3.78	3.2	2.36	3.60	3.97

[a]Includes 360/75 and high-speed data line outages.

Table 6. Summary of command activity during extended operations

Activity	DSS						
	12	14	41	42	51	62	Total
April							
Commands		144				1	145
Aborts		0				0	0
Percent down[a]		1.1				4	-
May							
Commands		79				42	121
Aborts		0				0	0
Percent down[a]		2.73				Nil	-
June							
Commands		4192				73	4265
Aborts		3				0	3
Percent down[a]		3.15				3.37	-
July							
Commands	3	782					785
Aborts	0	3					3
Percent down[a]	Nil	2.6					-
August							
Commands		778					778
Aborts		1					1
Percent down[a]		4.35					-
September							
Commands		229					229
Aborts		2					2
Percent down[a]		4.35					-
October							
Commands	9	2170	26		45		2250
Aborts	0	1	1		6		8
Percent down[a]	Nil	3.72	Nil		Nil		-

[a] Includes 360/75 and high-speed data line outages.

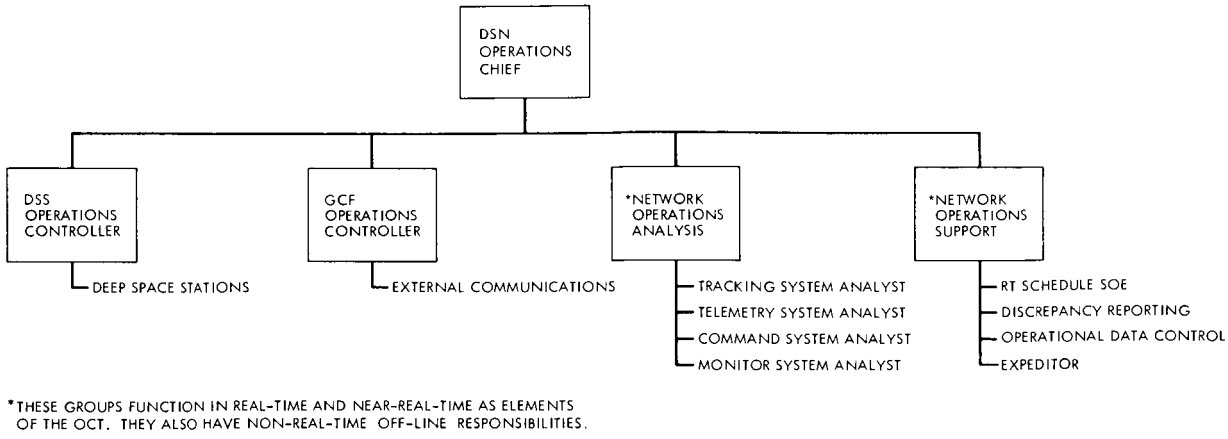


Fig. 14. DSN operations control team

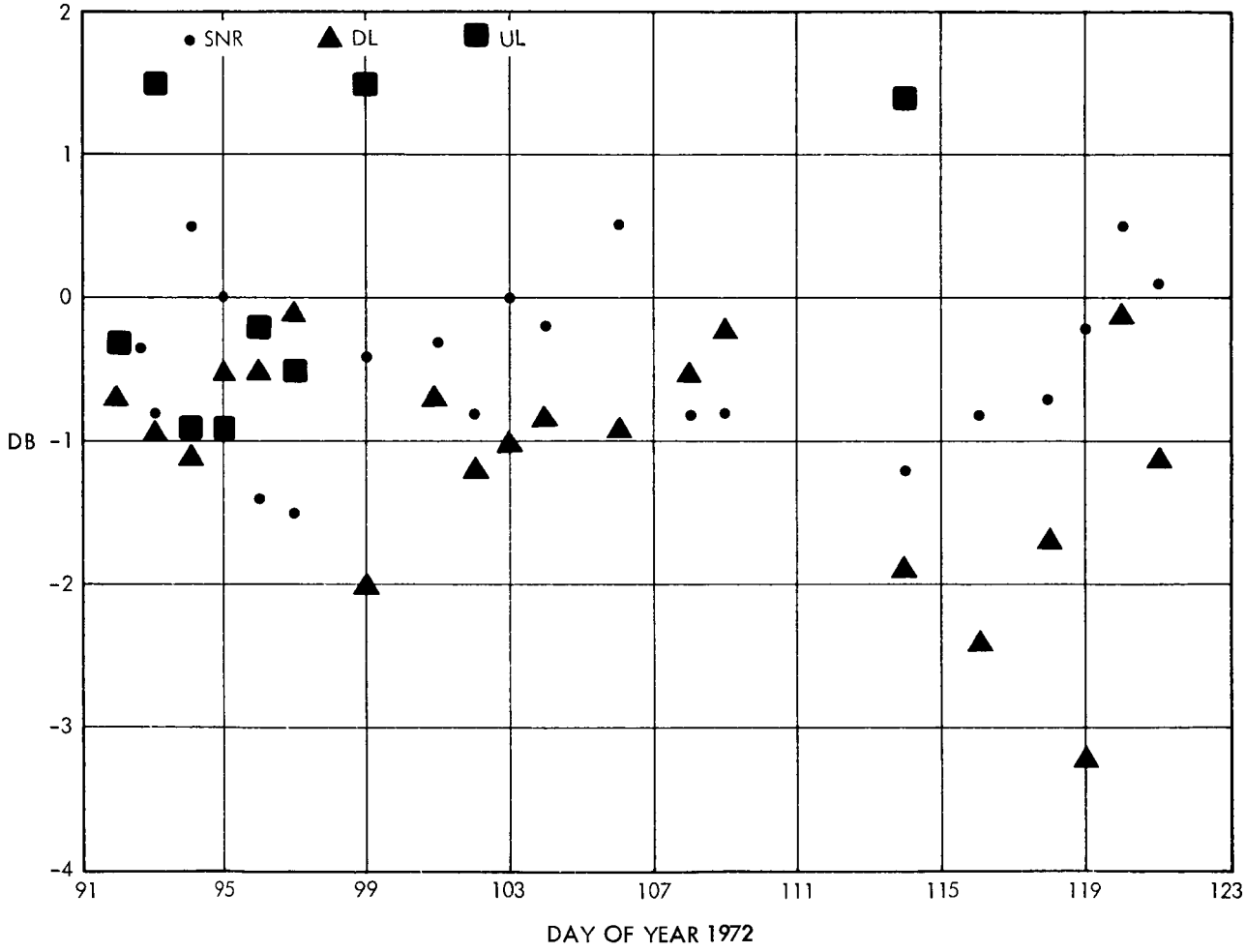


Fig. 15. Residual data plot for DSS 14, April 1972

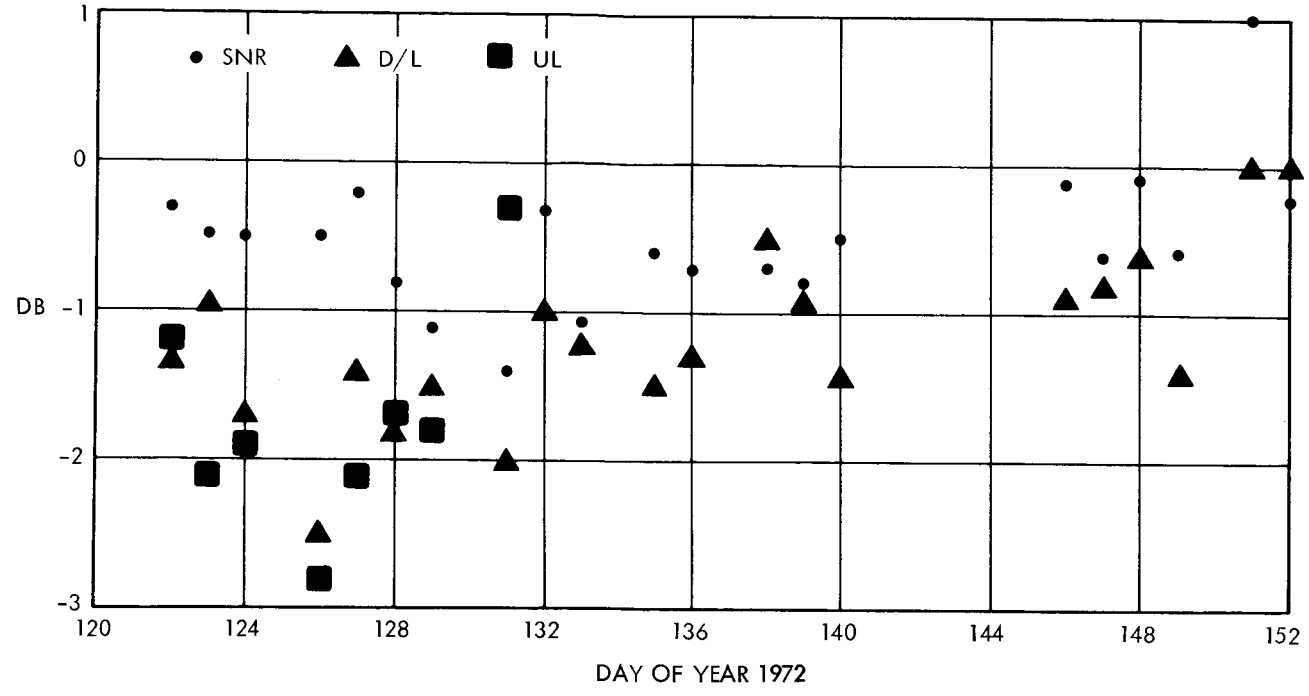


Fig. 16. Residual data plot for DSS 14, May 1972

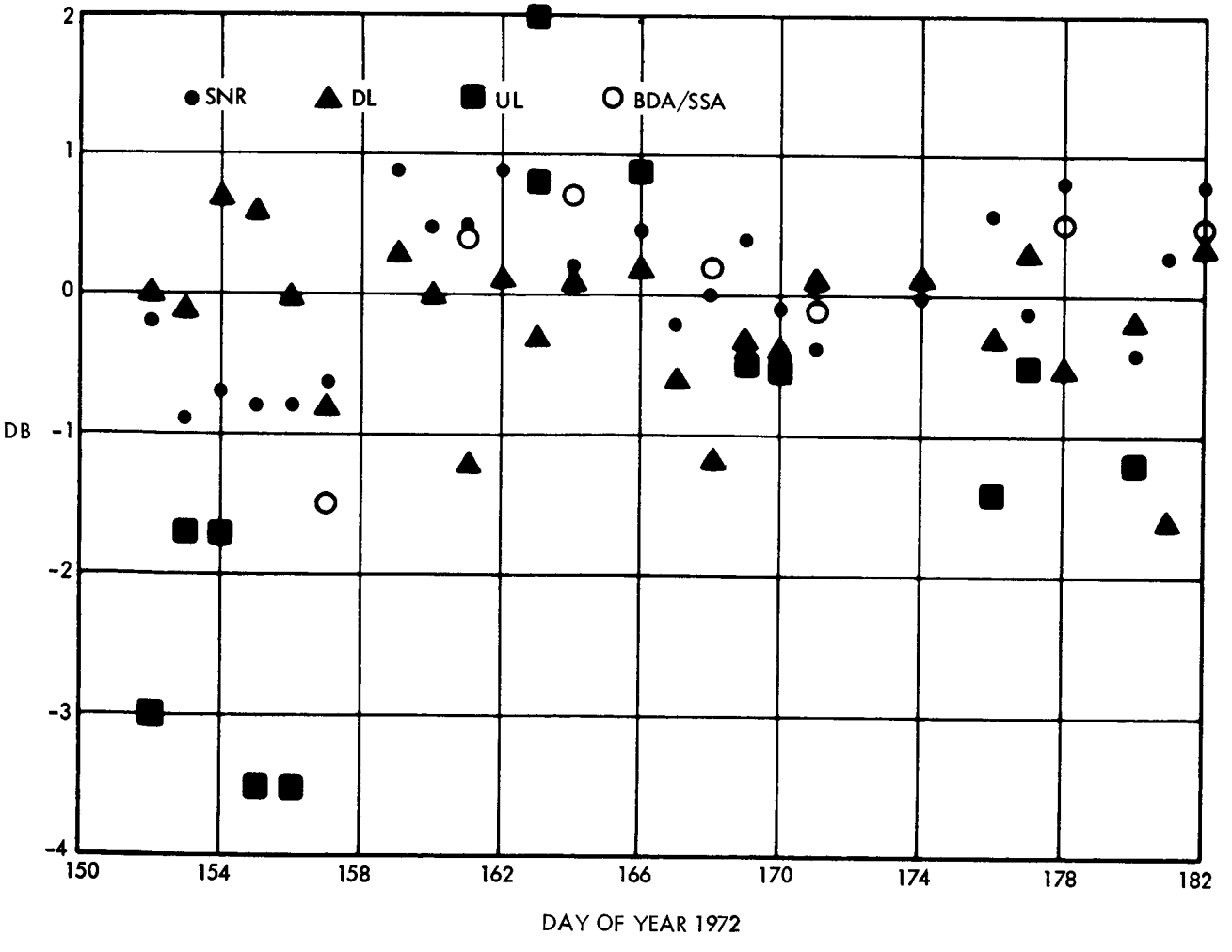


Fig. 17. Residual data plot for DSS 14, June 1972

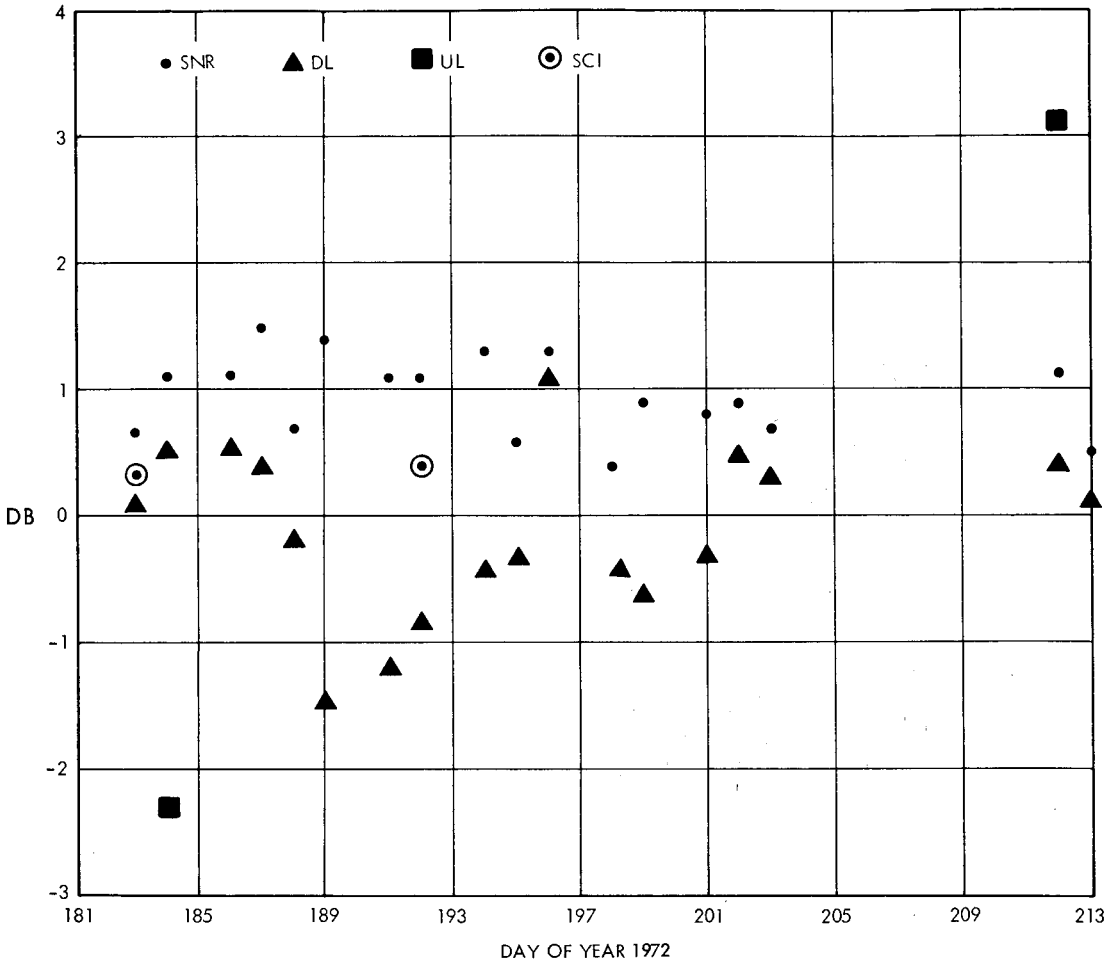


Fig. 18. Residual data plot for DSS 14, July 1972

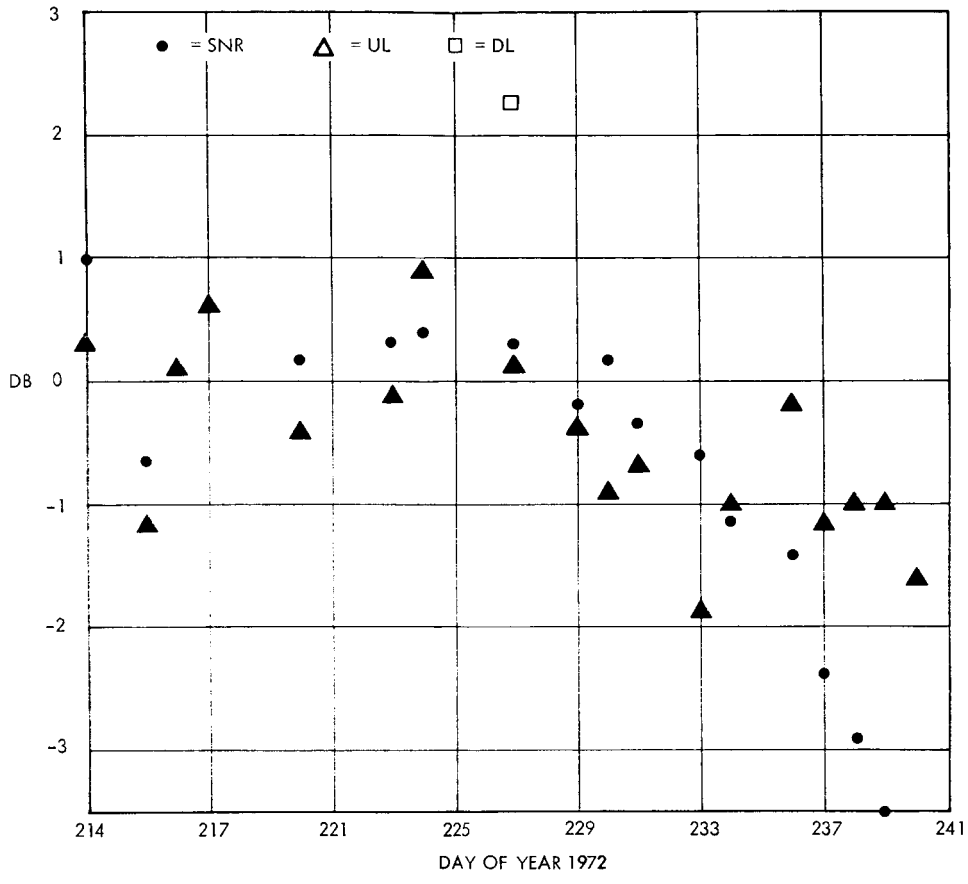


Fig. 19. Residual data plot for DSS 14, August 1972

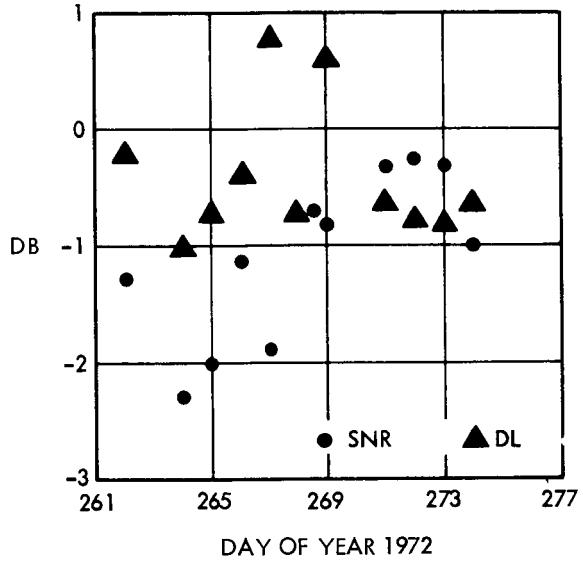


Fig. 20. Residual data plot for DSS 14, September 1972

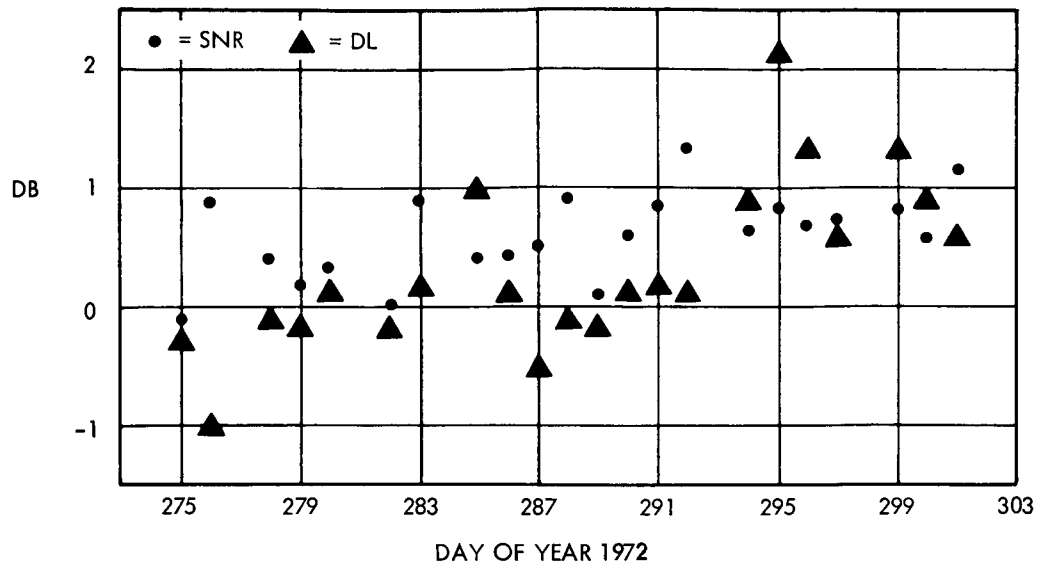
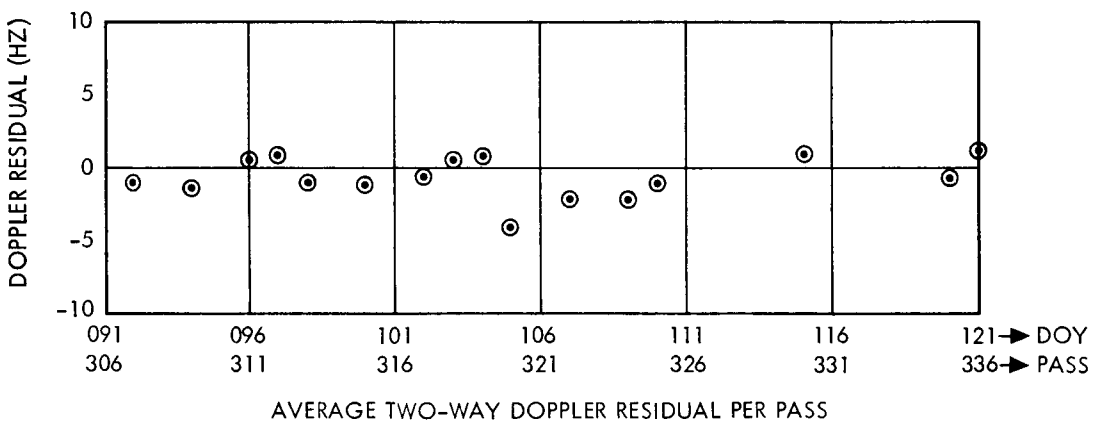


Fig. 21. Residual data plot for DSS 14, October 1972



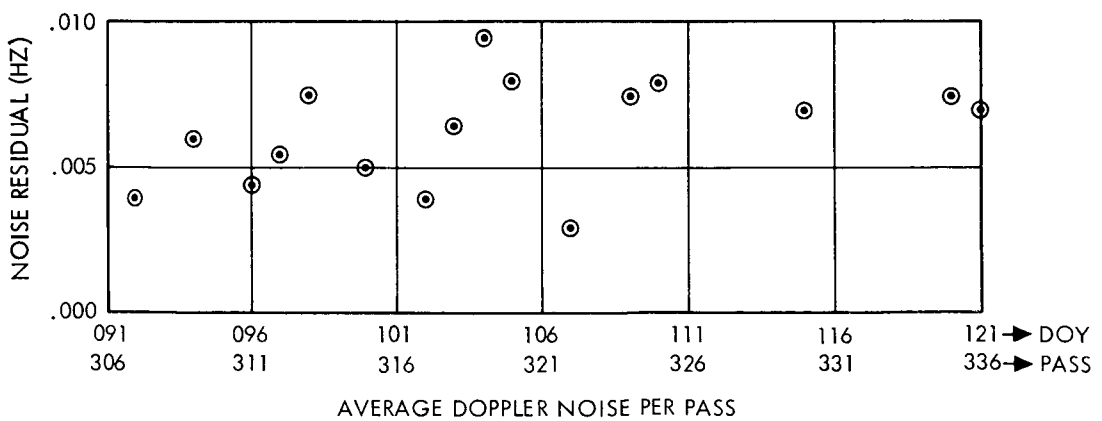


Fig. 22. Average DSS 14 residual plots for April 1972

APPENDIX

DETAILS OF PASS CHRONOLOGY*

PASS 0308 APR 01.1972 APR 02.1972 DAY 092 093

DSS 14 A.C.S. 092/1644 L.C.S. 093/0547 COMMANDS 7 RANGING NIL

DEVIATIONS OR ANOMALIES

1650Z-1655Z 360/75 DOWN TO CORRECT LINE PRINTER PROBLEM. REF DR 3355
2 WAY TRACK 1721Z-0540Z
CMDS XMTD 1715Z-00482

PASS 0309 APR 02.1972 APR 03.1972 DAY 093 094

DSS 14 A.C.S. 093/1636 L.C.S. 094/0546 COMMANDS 6 RANGING NIL

DEVIATIONS OR ANOMALIES

2 WAY TRACK 1716Z-0509Z
CMDS XMTD 1705Z-0430Z

PASS 0310 APR 03.1972 APR 03.1972 DAY 094 094

DSS 14 A.C.S. 094/1706 L.C.S. 094/2202 COMMANDS 16 RANGING NIL

DEVIATIONS OR ANOMALIES

3100 FLNG-UP 1956Z-1958Z; 2100Z-2102Z AND 2140Z-2142Z DR 3401
1912Z-1926Z LOST TTY AND VOICE-DITCH DIGGER CUT CABLES RE DR 5237

PASS 0311 APR 04.1972 APR 04.1972 DAY 095 095

DSS 14 A.C.S. 095/1710 L.C.S. 095/2200 COMMANDS 4 RANGING NIL

DEVIATIONS OR ANOMALIES

DUE TO THE MANY DIFFERENT MODE CHANGES NO TLM AVER
2140Z-2145Z 360 "A" DOWN. 2260 LOCK OUT, CANCEL RT JOB STEP W/DUMP DR 3406

PASS 0312 APR 05.1972 APR 06.1972 DAY 096 097

DSS 14 A.C.S. 096/1635 L.C.S. 097/0543 COMMANDS 16 RANGING NIL

DEVIATIONS OR ANOMALIES

1811Z-1813Z LOST HSD DR C-5245
0519Z-0536Z 360/75A DOWN, LOCKED OUT, WARM IPL/RESTART DR 3148
2 WAY TRACK 1640Z-0540Z

*Extracted from monthly DSN Operations Reports for Mariner Mars 1971 Project. For more detailed information, refer to the pass summaries in the individual monthly DSN Operations Reports for this period.

PASS 0313 APR 06.1972 APR 07.1972 DAY 097 098

DSS 14 A.C.S. 097/1632 L.C.S. 098/0543 COMMANDS 5 RANGING NIL

DEVIATIONS OR ANOMALIES

0032Z-0041Z 360/75B DOWN, TLM PROCESSORS LOCKED OUT, WARM IPL/RESTART DR 3420
400 KW TRANSMITTER TRIPPED OFF AT 0458Z DR T 1977
2 WAY TRACK 1656Z-0458Z

PASS 0315 APR 08.1972 APR 09.1972 DAY 099 100

DSS 14 A.C.S. 099/1627 L.C.S. 100/0541 COMMANDS 6 RANGING NIL

DEVIATIONS OR ANOMALIES

2 WAY TRACK 1630Z-1812Z AND 2040Z-0535Z

PASS 0317 APR 10.1972 APR 11.1972 DAY 101 102

DSS 14 A.C.S. 101/1627 L.C.S. 102/0544 COMMANDS 29 RANGING NIL

DEVIATIONS OR ANOMALIES

2130Z-2146Z 360/75A DOWN, 1052 LOCKED OUT, WARM IPL/RESTART DR 3309
0530Z XMTR TRIPPED OFF, RF FLOW PROB. DR T-1977
2 WAY TRACK 1603Z-1808Z
2 WAY TRACK 2040Z-0530Z

PASS 0318 APR 11.1972 APR 11.1972 DAY 102 102

DSS 14 A.C.S. 102/1659 L.C.S. 102/2200 COMMANDS 5 RANGING NIL

DEVIATIONS OR ANOMALIES

1837Z-1852Z CDC-3100 DOWN REF DR 3401
2 WAY TRACK 1705Z-2200Z
CMDS XMTD 1708Z-2150Z

PASS 0319 APR 12.1972 APR 13.1972 DAY 103 104

DSS 14 A.C.S. 103/1620 L.C.S. 104/0538 COMMANDS 5 RANGING NIL

DEVIATIONS OR ANOMALIES

2033Z-2052Z 360/75A DOWN REFERENCE DR 3439 UP ON 360/75B
DR NC158 HIGH DOPPLER NOISE

PASS 0320 APR 13.1972 APR 14.1972 DAY 104 105

DSS 14 A.C.S. 104/1620 L.C.S. 105/0537 COMMANDS 19 RANGING NIL

DEVIATIONS OR ANOMALIES

0015Z-0028Z 360/75B DOWN DR3448 REFERS.
0527Z TXR FAILED, RF LOUD WATER FLOW
INTERLOCK PROBLEM. DRT-1989 REFERS.

PASS 0322 APR 15,1972 APR 15,1972 DAY 106 106

DSS 14 A.C.S. 106/1712 L.C.S. 106/2200 COMMANDS 4 RANGING NIL

DEVIATIONS OR ANOMALIES

2 WAY TRACK 1730Z-2133Z
CMDS XMTD 1734Z-1800Z AND 2048Z-2125Z

PASS 0324 APR 17,1972 APR 17,1972 DAY 108 108

DSS 14 A.C.S. 108/1650 L.C.S. 108/2200 COMMANDS 5 RANGING NIL

DEVIATIONS OR ANOMALIES

1735Z-1745Z TRANSMITTER KICKED OFF, RF FLOW PROBLEM, DR 11993
1936Z-1939Z DIGITAL TV SUB SYSTEM DOWN NO DR
2013Z-2019Z CDC 3100 RESTART REQUIRED DR 3459

PASS 0325 APR 19,1972 DAY 10 110

DSS 14 A.C.S. 10 /1614 L.C.S. 110/0533 COMMANDS 3 RANGING NL

DEVIATIONS OR ANOMALIES

1648Z-1653Z XMTR KICKED OFF, DUE TO RF LOW FLOW. REF DR 1995
XMTR KICKED OFF. DR LOW FLOW FL063. REF DR 1995 1722Z

PASS 0330 APR 23,1972 APR 23,1972 DAY 114 114

DSS 14 A.C.S. 114/1650 L.C.S. 114/1900 COMMANDS 1 RANGING NIL

DEVIATIONS OR ANOMALIES

STATION RELEASED EARLY TO RECONFIGURE FOR APOLLO SUPPORT.

PASS 0332 APR 25,1972 APR 25,1972 DAY 116 116

DSS 62 A.C.S. 116/1430 L.C.S. 116/1729 COMMANDS 1 RANGING NIL

DEVIATIONS OR ANOMALIES

UPLINK TEST BEING CONDUCTED WITH DSS 62 & DSS 14.

PASS 0332 APR 25,1972 APR 26,1972 DAY 116 117

DSS 14 A.C.S. 116/1618 L.C.S. 117/0400 COMMANDS 2 RANGING NIL

DEVIATIONS OR ANOMALIES

UPLINK TEST CONDUCTED WITH DSS 62 AND DSS 14.
1630Z DIS/ICP IF LATE DUE TO LOW SS.
1636Z RCL ANTENNA AT ZENITH FOR CAL.
2254Z-2305Z 360 "A" DOWN DR 3482 REFERS.

PASS 0334 APR 27,1972 APR 28,1972 DAY 118 119

DSS 14 A.O.S. 118/1729 L.O.S. 119/0400 COMMANDS 3 RANGING ML

DEVIATIONS OR ANOMALIES

302-0335Z DIS DOWN FOR RELOAD, DUE TO LGWR HANG-UP DR N-0176
NC TCP/DIS INTERFACE AT ACS, ESTABLISHED AT 1735Z
0330Z-0335Z DIS DOWN FOR RELOAD, DUE TO LGWR HANG-UP DR N-0176

PASS 0335 APR 28,1972 APR 29,1972 DAY 119 120

DSS 14 A.O.S. 119/1611 L.O.S. 120/0448 COMMANDS 4 RANGING ML

DEVIATIONS OR ANOMALIES

NC DIS/TCP INTERFACE AT ACS, ESTABLISHED AT 1621Z
1655Z RCV'S 1 AND 2 SPE SHOWS CONTINUOUS READING OF-.031 ,
NC MONITOR OR ALARM CAPB DR N-0177
2124Z-2138Z 360/75B DOWN, 2260'S LOCKED OUT, SWAPPED TO "A" SYS,
DR 3495
1722Z-1729Z BLEW 2-WAY ACQ., DC-32 CMD REQ. RE-TRANSMISSION
REF: DR T-2015
2226Z-2234Z 3100 DOWN, HUNG UP, SWAPPED SYS, REF: DR 3459

PASS 0336 APR 29,1972 APR 29,1972 DAY 120 120

DSS 14 A.C.S. 120/1652 L.C.S. 120/2330 COMMANDS 2 RANGING NIL

DEVIATIONS OR ANOMALIES

STA 14 WENT MANUAL TO XMIT DC-32 COMMAND DUE TO MARCHIEFS "RED"
2260 I/O DEVICE CAUSED BY 360/75B. DR ON 360/75B-DR 3495
ACS-1707Z DIS LOG TAPE NOT ENABLED
1750Z-1753Z LOST MONITOR DATA
2042Z-2055Z 360 'B' DOWN FOR SCHEDULED STRING SWAP UP ON 'A'
STRING

PASS 0337 APR 30,1972 APR 30,1972 DAY 121 121

DSS 14 A.O.S. 121/1646 L.O.S. 121/2330 COMMANDS 2 RANGING NIL

DEVIATIONS OR ANOMALIES

1639Z-1652Z 360 "A" DOWN RE: DR 3499
1646Z-1655Z 360 "A" DOWN NO DR
2023Z-2031Z 360 "A" DOWN RE: DR 3500

PASS 0338 MAY 01,1972 MAY 01,1972 DAY 122 122

DSS 14 A.C.S. 122/1646 L.C.S. 122/2330 COMMANDS 3 RANGING NIL

DEVIATIONS OR ANOMALIES

ACS TO 215C TDH BAD DUE TO STUCK DOPPLER COUNTER REF. DR N-0180

PASS 0339 MAY 02,1972 MAY 03,1972 DAY 123 124

DSS 14 A.C.S. 123/1556 L.C.S. 124/0300 COMMANDS 3 RANGING NL

DEVIATIONS OR ANOMALIES

ACS (1556) TO 1601Z- NO MONITOR DATA- ACS-1605Z NO TCP/DIS INTERFACE.
1613Z-1675Z MICROWAVE DOWN, SWITCHED TO LAND LINE REF DR C-5422
1727Z-MISSED 2W CYCLE EVENT REF. DR T-2024
2028Z-400 KW TX KICKED OFF: FAST BODY CURRENT ALARM. REF. DR T-2025
0139Z-0147Z 360/75A DOWN W/RESTART REF. DR 3510

PASS 0340 MAY 04,1972 MAY 05,1972 DAY 125 126

DSS 14 A.C.S. 125/1554 L.C.S. 126/0311 COMMANDS 3 RANGING MU

DEVIATIONS OR ANOMALIES

ACS (1554Z) TO 1600Z-NO MONITOR DATA, DIS/TCP INTERFACE, AND DIS LOG TAPE NOT ENABLED.
DR N-0182, D/L RSID EXCEED TOL-1.5 DB
TWC WAY 1658Z-0311Z COMMANDS AT 1622Z-2210Z

PASS 0342 MAY 06,1972 MAY 07,1972 DAY 127 128

DSS 14 A.C.S. 127/1638 L.C.S. 128/0430 COMMANDS 4 RANGING MU

DEVIATIONS OR ANOMALIES

PASS 0343 MAY 06,1972 MAY 06,1972 DAY 127 127

DSS 14 A.C.S. 127/1659 L.C.S. 127/2330 COMMANDS 2 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0344 MAY 07,1972 MAY 07,1972 DAY 128 128

DSS 14 A.C.S. 128/1659 L.C.S. 128/2330 COMMANDS 2 RANGING NIL

DEVIATIONS OR ANOMALIES

DTS DATA SENT WHILE TDH ON LINE FOR 1-SEC EXIT OCCULTATION DATA
DATA CNF WROTE 1-SEC TDA DATA ON DISK. RECALLED TDH DATA AFTER PASS LCS: DR-N-0190
DTS DATA UNUSABLE DR N-0191
DR N-0192, DOWNLINK -1.8 DB BELOW PREDIX OUT OF TOLERANCE OF -1.5 DB

PASS 0345 MAY 09,1972 MAY 10,1972 DAY 130 131

DSS 14 A.O.S. 130/1547 L.O.S. 131/0500 COMMANDS 3 RANGING NO

DEVIATIONS OR ANOMALIES

1830Z-TDH DSS-14 STOPPED 5-SEC BEFORE ENTER OCCULTATION
DR N-0192.
2337Z 400KW HV SPLY FAIL. DR T-2036
TWC MAY 1651Z-0500Z COMMANDS AT 1617Z-2212Z

PASS 0347 MAY 10,1972 MAY 10,1972 DAY 131 131

DSS 14 A.O.S. 131/1659 L.O.S. 131/2331 COMMANDS 3 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0348 MAY 11,1972 MAY 12,1972 DAY 132 133

DSS 14 A.O.S. 132/1543 L.O.S. 133/0300 COMMANDS 3 RANGING NO

DEVIATIONS OR ANOMALIES

2228Z-2230Z DSS 14'S OPERATOR INADVERTANTLY SHUT THE BEAM OFF
ON TRANSMITTER INSTEAD OF LOWERING IT. DR T-2040 REFERS

PASS 0349 MAY 12,1972 MAY 13,1972 DAY 133 134

DSS 14 A.O.S. 133/1544 L.O.S. 134/0300 COMMANDS 3 RANGING NIL

DEVIATIONS OR ANOMALIES

2104Z-2120Z 360/75B DOWN. CORE FRAGMENTATION DR 3533
2215Z-2225Z 360/75B DOWN. DR 3547 REFERS
0159Z-0247Z 3100 DOWN FOR WORK. DR 3539 REFERS
0252Z-0302Z 3100 DOWN, DR 3539 REFERS.

PASS 0351 MAY 14,1972 MAY 14,1972 DAY 135 135

DSS 14 A.O.S. 135/1630 L.O.S. 135/2330 COMMANDS 2 RANGING NIL

DEVIATIONS OR ANOMALIES

2329Z-2343Z 360/75A DOWN 2260'S LOCKED OUT. DR 3553

PASS 0352 MAY 15,1972 MAY 16,1972 DAY 136 137

DSS 14 A.O.S. 136/1541 L.O.S. 137/0506 COMMANDS 23 RANGING NO

DEVIATIONS OR ANOMALIES

1913Z-1923Z 360/75A DOWN. IC TIME OUTS. FORCE "R" DUMP,
WARM IPL/RESTART. DR 3554.
0327Z-0337Z 360/75A DOWN FOR IPL AND WARM RESTART DR 3536

PASS 0353 MAY 16,1972 MAY 16,1972 DAY 137 137

DSS 62 A.C.S. 137/1625 L.C.S. 137/1730 COMMANDS 3 RANGING NIL

DEVIATIONS OR ANOMALIES

UPLINK AND COMMAND SYSTEM ONLY - BELOW DOWNLINK THRESHOLD.

PASS 0353 MAY 16,1972 MAY 16,1972 DAY 137 137

DSS 62 A.C.S. 137/2004 L.C.S. 137/2055 COMMANDS 3 RANGING NIL

DEVIATIONS OR ANOMALIES

UPLINK AND COMMAND SYSTEM ONLY - BELOW DOWNLINK THRESHOLD.

PASS 0354 MAY 17,1972 MAY 17,1972 DAY 138 138

DSS 14 A.C.S. 138/1624 L.C.S. 138/2330 COMMANDS 3 RANGING MU

DEVIATIONS OR ANOMALIES

19047-19347 360 B DOWN RESTART DR 3567
21177-21277 360 B DOWN WARM IPL DR 3571
21547-22097 360 B DOWN WARM IPL DR 3572

PASS 0355 MAY 19,1972 MAY 20,1972 DAY 140 141

DSS 14 A.C.S. 140/1538 L.C.S. 141/0300 COMMANDS 3 RANGING MU

DEVIATIONS OR ANOMALIES

16067-16187 360 DOWN DR 3577
23137-23267 360 DOWN DR 3580
02307-02437 360 DOWN DR 3581
DELAY IN COMMAND TRANSMISSION OF MSG 111-1 DC-32 DUE TO WRONG STC AND LIMITS TABLE CONFIGURATION SENT TO DSS-14 TCP DR N-0208

PASS 0356 MAY 20,1972 MAY 21,1972 DAY 141 142

DSS 14 A.C.S. 141/1534 L.C.S. 142/0500 COMMANDS 3 RANGING MU

DEVIATIONS OR ANOMALIES

20352-20447 360 DOWN WARM IPL AND RESTART DR 3979.

PASS 0357 MAY 20,1972 MAY 20,1972 DAY 141 141

DSS 62 A.C.S. 141/1629 L.C.S. 141/2055 COMMANDS 3 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0357 MAY 20,1972 MAY 20,1972 DAY 141 141

DSS 14 A.O.S. 141/1747 L.C.S. 141/1952 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0357 MAY 20,1972 MAY 20,1972 DAY 141 141

DSS 14 A.O.S. 141/1927 L.C.S. 141/1952 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0357 MAY 20,1972 MAY 20,1972 DAY 141 141

DSS 62 A.O.S. 141/2004 L.C.S. 141/2055 COMMANDS 3 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0358 MAY 21,1972 MAY 21,1972 DAY 142 142

DSS 62 A.O.S. 142/1629 L.C.S. 142/2055 COMMANDS 3 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0358 MAY 21,1972 MAY 21,1972 DAY 142 142

DSS 62 A.O.S. 142/1749 L.C.S. 142/2055 COMMANDS 3 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0359 MAY 22,1972 MAY 22,1972 DAY 143 143

DSS 62 A.O.S. 143/1625 L.C.S. 143/1740 COMMANDS 3 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0359 MAY 22,1972 MAY 22,1972 DAY 143 143

DSS 14 A.O.S. 143/1750 L.C.S. 143/1808 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0359 MAY 22,1972 MAY 22,1972 DAY 143 143

DSS 14 A.O.S. 143/1940 L.C.S. 143/1956 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0359 MAY 22,1972 MAY 22,1972 DAY 143 143

DSS 62 A.O.S. 143/1945 L.C.S. 143/2056 COMMANDS 3 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0360 MAY 23,1972 MAY 23,1972 DAY 144 144

DSS 62 A.O.S. 144/1625 L.C.S. 144/1741 COMMANDS 3 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0360 MAY 23,1972 MAY 23,1972 DAY 144 144

DSS 62 A.O.S. 144/2000 L.C.S. 144/2055 COMMANDS 3 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0361 MAY 24,1972 MAY 24,1972 DAY 145 145

DSS 62 A.O.S. 145/1629 L.C.S. 145/1743 COMMANDS 3 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0361 MAY 24,1972 MAY 24,1972 DAY 145 145

DSS 14 A.O.S. 145/1753 L.C.S. 145/1813 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0361 MAY 24,1972 MAY 24,1972 DAY 145 145

DSS 14 A.O.S. 145/1952 L.C.S. 145/2002 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0361 MAY 24,1972 MAY 24,1972 DAY 145 145

DSS 62 A.O.S. 145/1958 L.C.S. 145/2055 COMMANDS 3 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0362 MAY 25,1972 MAY 26,1972 DAY 146 147

DSS 14 A.O.S. 146/1529 L.C.S. 147/0453 COMMANDS 3 RANGING MU

DEVIATIONS OR ANOMALIES

*RECEIVER OUT OF LOCK AND RECEIVER IN LOCK
20417-2055Z 360/75R DOWN, 2260'S LOCKED OUT, WARM IPL/RESTART,
DR 3595

PASS 0363 MAY 26,1972 MAY 27,1972 DAY 147 148

DSS 14 A.O.S. 147/1527 L.C.S. 148/0420 COMMANDS 3 RANGING MU

DEVIATIONS OR ANOMALIES

3100 DECLARED RED AT 15472. 3100 UP AT 1704Z DR 3601 REFERS.
TRACK TERMINATED EARLY PER PROJECT.
0356Z TRANSMITTER KICKED OFF REF DR T-2076

PASS 0364 MAY 27,1972 MAY 27,1972 DAY 148 148

DSS 14 A.O.S. 148/1618 L.C.S. 148/2127 COMMANDS 3 RANGING MU

DEVIATIONS OR ANOMALIES

STATION RELEASED EARLY DUE TO 400KW TRANSMITTER FAILURE REFER
DR 2077

PASS 0365 MAY 28,1972 MAY 28,1972 DAY 149 149

DSS 14 A.O.S. 149/1621 L.C.S. 149/2330 COMMANDS 3 RANGING MU

DEVIATIONS OR ANOMALIES

PASS 0366 MAY 29,1972 MAY 29,1972 DAY 150 150

DSS 62 A.O.S. 150/1629 L.C.S. 150/1720 COMMANDS 3 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0366 MAY 29,1972 MAY 29,1972 DAY 150 150

DSS 62 A.O.S. 150/2000 L.C.S. 150/2055 COMMANDS 3 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0367 MAY 31,1972 JUN 01,1972 DAY 152 153

DSS 14 A.C.S. 152/1524 L.C.S. 153/0446 COMMANDS 4 RANGING MU

DEVIATIONS OR ANOMALIES

1522Z-1538Z 360/75 DOWN. DUE TO EQUIPMENT LOCKOUT REQ. W/W REF DR 3609
1613Z-1618Z MICROWAVE DOWN/FAILURE AT DSS10 DR C-5575.
1618Z-1622Z 3100 DOWN
1837Z-1927Z TCP-A USED FOR HIGH RATE CHECK OUT LGWR/LGER NOT USABLE.
1934Z GEN. OVER-CURRENT ALARMS ON 400KW TRANSMITTER DR T-2080
1951Z LOST 400 CYCLE GEN. ON 20KW DR T-2081
2135Z 20KW TRANSMITTER TRIPPED OFF DR T-2082

PASS 0368 MAY 31,1972 MAY 31,1972 DAY 152 152

DSS 14 A.C.S. 152/1624 L.C.S. 152/2330 COMMANDS 11 RANGING MU

DEVIATIONS OR ANOMALIES

1625Z 400KW TRANSMITTER KICK-OFF
1621Z-1628Z 360 DOWN. CORE FRAGMENTATION DR 3615
1801Z-1809Z DTV 3100 DOWN. BACKLOG. RESTART REQUIRED DR 3616
1814Z-1816Z DTV 3100 DOWN
2115Z-2117Z CP FAULT DR 5583
BOTH TCP A AND TCP B USED FOR TRACK
PREDIC 164.8 N/A 7.7 7.7

PASS 0369 JUN 01,1972 JUN 02,1972 DAY 153 154

DSS 14 A.C.S. 153/1531 L.C.S. 154/0440 COMMANDS 717 RANGING NIL

DEVIATIONS OR ANOMALIES

1521Z RCV 1 AND 2 GLITCHED. RUBIDIUM FREQUENCY STANDARD PROBLEM
1610Z-1633Z BROKE TRACK FOR REALIGN. DR T-2087.
1908Z-1917Z 360/75A DOWN. IPL-RESTART. LOCKOUT PROBLEM FROM 1852Z. AWAITING 1 SEC TOF PLAY IN. DR 3621
2012Z-2019Z CDC 3100 DOWN. SWAPPED B. CIC SUSPECTED. DR 3616.
0420Z-0432Z 360/75A DOWN. DR 3621

PASS 0370 JUN 02,1972 JUN 03,1972 DAY 154 155

DSS 14 A.C.S. 154/1521 L.C.S. 155/0442 COMMANDS 394 RANGING NIL

DEVIATIONS OR ANOMALIES

1832Z TIME REF TO 360/75 LOST DUE TO JUMPER CABLE BEING INSTALLED IN 2780 TO INVESTIGATE TIMING PROBLEM.
1923Z-1934Z 360/75 DOWN TO CLEAR DTV PROBLEM. IPL RESTART. NO DR.
2148Z-2156Z 360/75 DOWN. IPL RESTART. DR 3626.

PASS 0371 JUN 03,1972 JUN 03,1972 DAY 155 155

DSS 14 A.C.S. 155/1625 L.C.S. 155/2330 COMMANDS 3 RANGING MU

DEVIATIONS OR ANOMALIES

PASS 0372 JUN 05,1972 JUN 06,1972 DAY 157 158

DSS 14 A.O.S. 157/1620 L.C.S. 158/0300 COMMANDS 42 RANGING MU

DEVIATIONS OR ANOMALIES

171552Z-TRANSMITTER TRIPPED OFF (ARC DETECTOR) REF: DR T-2092.
000903Z-TRANSMITTER TRIPPED OFF (COMMERCIAL POWER GLITCH) REF: DR T-2093.
20037-20327, 360/75A DOWN, LOCKED OUT OF SYSTEM, REQ. IPL, DR 3633.
23387-23487, 360/75A DOWN, TLM PROCESS PROBLEMS, WARM IPL/ RESTART, DR 3634.
MAT TRK UNABLE TO PROBE DTS, REF: DR N-0230.

PASS 0373 JUN 05,1972 JUN 06,1972 DAY 157 158

DSS 14 A.O.S. 157/1918 L.C.S. 158/0438 COMMANDS 109 RANGING NIL

DEVIATIONS OR ANOMALIES

ACTUAL	8.5	ACTUAL	19.0
PREDICTED	8.0	PREDICTED	19.6
DIFFER	+0.5	DIFFER	-0.6

0137-2027Z 360/75A DOWN LOCKED OUT OF SYS IPL REQ DR 3636
2137-2238Z 360/75A DOWN SKED FOR MSE PACK SWITCH

TCP A BIT RATE 8 1/3		TCP A BIT RATE 8.1K	
ACTUAL	8.5	ACTUAL	19.0
PREDICTED	8.0	PREDICTED	19.6
DIFFER	+0.5	DIFFER	-0.6

20137-20277 360/75A DOWN LOCKED OUT OF SYS IPL REQ DR 3636
22137-22387 360/75A DOWN SKED FOR MSE PACK SWITCH

PASS 0375 JUN 07,1972 JUN 08,1972 DAY 159 160

DSS 14 A.O.S. 159/1917 L.C.S. 160/0436 COMMANDS 565 RANGING NIL

DEVIATIONS OR ANOMALIES

15347-COMMERCIAL POWER GLITCH, NO EFFECT ON OPERATIONS.
18137-18277 360/75A DOWN, LOCKED OUT OF SYSTEM, IPL REQUIRED.
19557-20077 360/75A DOWN, 1052'S LOCKED OUT, IPL REQUIRED, DR 3646.
01057-01147 360/75A DOWN, TLM PROCESS LOCKED OUT. DR 3648
0114Z COMMAND MSG 029-05 ABORTED DUE TO TRANSMITTER TRIP-OFF. DR T-2095 REFERS.

PASS 0376 JUN 08,1972 JUN 08,1972 DAY 160 160

DSS 14 A.O.S. 160/1529 L.C.S. 160/2326 COMMANDS 50 RANGING NIL

DEVIATIONS OR ANOMALIES

*15167-15297, OPERATOR ERROR IN COMPUTATION OF DI VALUE DELAYED SKED. ALS DR T-2098.
15407-15447, STATION PUT DIS DATA TO LINE WITHOUT PRIOR NOTIFICATION. DR N-0243.
18587-19097, 360/75A DOWN, DR 3653

PASS 0377 JUN 09,1972 JUN 09,1972 DAY 161 161

DSS 62 A.O.S. 161/1315 L.O.S. 161/1800 COMMANDS 10 RANGING NIL

DEVIATIONS OR ANOMALIES

1407Z-1423Z 360/75A DOWN. STRING SWAP TO B. BLOWN CKT. BKR. DR 3655.
1745Z TRANSMITTER DOWN. 400 CYCLES CONVERTER FAILURE. DR T-2100

PASS 0377 JUN 09,1972 JUN 10,1972 DAY 161 162

DSS 14 A.O.S. 161/1514 L.O.S. 162/0434 COMMANDS 1 RANGING NIL

DEVIATIONS OR ANOMALIES

2325Z-2341Z 360/75B DOWN, 2260'S LOCKED OUT. DR3658
0015Z - TCP RELOAD.

PASS 0378 JUN 11,1972 JUN 12,1972 DAY 163 164

DSS 14 A.O.S. 163/1514 L.O.S. 164/0432 COMMANDS 350 RANGING NIL

DEVIATIONS OR ANOMALIES

0039Z TRANSMITTER KICKED OFF. CAUSED BY COMMERCIAL POWER. OUTAGE. DR T-2104.
0239Z-0247Z 360/75B DOWN. WARM IPL/WARM RESTART. DR 3660.
0304Z-0318Z 360/75B DOWN. SYSTEM LOCKED UP. IPL REQUIRED. DR 3661.
1305Z - LOST 2420 CKT. BKR IN 400Kw TXR. DR T-2103 REFERS.
DR 024C WRONG XMTR TURN ON TIME.

PASS 0379 JUN 11,1972 JUN 11,1972 DAY 163 163

DSS 14 A.O.S. 163/1512 L.O.S. 163/2200 COMMANDS 24 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0380 JUN 12,1972 JUN 12,1972 DAY 164 164

DSS 62 A.O.S. 164/1315 L.O.S. 164/1822 COMMANDS 10 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0380 JUN 12,1972 JUN 13,1972 DAY 164 165

DSS 14 A.O.S. 164/1512 L.O.S. 165/0429 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

2005Z-2020Z, 360/75A DOWN, REF: DR 3667.
2342Z-2348Z, 360/75A DOWN FOR SWAP OF MSD PACK, REF: DR 3667.

NOTE - TCP-B RELOADED DURING OCCULTATION.

PASS 0382 JUN 14,1972 JUN 15,1972 DAY 166 167

DSS 14 A.O.S. 166/1543 L.O.S. 167/0424 COMMANDS 459 RANGING NIL

DEVIATIONS OR ANOMALIES

NOTE - APPARENT LATE AOS IS IN ACCORDANCE WITH SPEC CHANGE.
18122 - TXR FAILURE - 400HZ CONVERTER PROBLEM (400KW TXR) OR T-2115.
2211Z-2212Z TXR FAILURE - SWITCH - WAVE GUIDE (400KW)
22122 TXR FAILURE - WAVE GUIDE SWITCH FAILURE, SWAP TO 20KW TXR - OR T-2116.
1803Z-1819Z 360 A DOWN. RE DR 3672.
1821Z-1825Z 360 A DOWN. RE DR 3672.

PASS 0383 JUN 15,1972 JUN 15,1972 DAY 167 167

DSS 14 A.O.S. 167/1630 L.O.S. 167/2200 COMMANDS 2 RANGING NIL

DEVIATIONS OR ANOMALIES

1823Z-1835Z 360/75 DOWN DR 3678.
1947Z-1957Z 360/75 DOWN REF DR 3667.

PASS 0384 JUN 16,1972 JUN 16,1972 DAY 168 168

DSS 62 A.O.S. 168/1310 L.O.S. 168/1836 COMMANDS 11 RANGING NIL

DEVIATIONS OR ANOMALIES

1601Z-1609Z. TRANSMITTER POWER DROPPED TO 3.5KW CAUSING LOSS OF COMMAND LOOP LOCK; AND RCVRS AT DSS-14.
COMMAND DC-19 NOT RECEIVED BY S/C, HAD TO BE RETRANSMITTED.
OR T-2119, TFR B07556.

PASS 0384 JUN 16,1972 JUN 17,1972 DAY 168 169

DSS 14 A.O.S. 168/1907 L.O.S. 169/0422 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

1907Z-1920Z 360 A DOWN. SYSTEM BACKLOG, CANX RTJS DR 3684.

PASS 0384 JUN 16,1972 JUN 16,1972 DAY 168 168

DSS 12 A.O.S. 168/1923 L.O.S. 168/2210 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0385 JUN 17,1972 JUN 18,1972 DAY 169 170

DSS 14 A.O.S. 169/1509 L.O.S. 170/0420 COMMANDS 288 RANGING NIL

DEVIATIONS OR ANOMALIES

19332-19417 360 DOWN DR 3686 CORE FRAG.

PASS 0386 JUN 18,1972 JUN 18,1972 DAY 170 170

DSS 14 A.O.S. 170/1650 L.O.S. 170/2230 COMMANDS 2 RANGING NIL

DEVIATIONS OR ANOMALIES

18122-18262 360 DOWN DR 3680.
18402-18592 360 DOWN DR 3690.
21482-21552 360 DOWN RE DR 3690.
22062-22182 360 DOWN DR 3691.

PASS 0387 JUN 19,1972 JUN 19,1972 DAY 171 171

DSS 62 A.O.S. 171/1305 L.O.S. 171/1850 COMMANDS 10 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0387 JUN 19,1972 JUN 20,1972 DAY 171 172

DSS 14 A.O.S. 171/1506 L.O.S. 172/0416 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

BIT RATE	4.05	8.1
	TCP 8 SCI	TCP 8 SCI
ACTUAL	5.3	3.2
PREDICT	4.9	3.1
DIFFER	+0.4	+0.1

17492-17522 360 DOWN TO LOAD VERSION 12.4 (SCHEDULED)
20012-20542 LOST ALL COMM CKTS EXCEPT WIDEBAND DATA LINE, ELECTRICAL FIRE AT DSS-14. DR 5703.
22302-22332 LOST HSD. DR 5707.
02282-02472 360 DOWN - TOTAL LOCKOUT, FORCED R DUMP IPL/WARM AND RESTART/WARM. DR 3696.

PASS 0387 JUN 19,1972 JUN 19,1972 DAY 171 171

DSS 12 A.O.S. 171/1930 L.O.S. 171/2205 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0389 JUN 21,1972 JUN 22,1972 DAY 173 174

DSS 14 A.O.S. 173/1504 L.O.S. 174/0413 COMMANDS 422 RANGING NIL

DEVIATIONS OR ANOMALIES

16032-16142, 360/75A DOWN, R/T SPCOL PROBLEMS. CR 3706.
16342-16492, 360/75A DOWN, COLD R/T JOB STEP, SWAPPED MSC PACKS. CR 3706.
17272-17332, 360/75A DOWN, WARM IPL/RESTART, DR 3710.

PASS 0390 JUN 22,1972 JUN 22,1972 DAY 174 174

DSS 14 A.O.S. 174/2015 L.C.S. 174/2236 COMMANDS 2 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0390 JUN 23,1972 JUN 23,1972 DAY 175 175

DSS 62 A.C.S. 175/1300 L.C.S. 175/1900 COMMANDS 10 RANGING NIL

DEVIATIONS OR ANOMALIES

COMMAND ONLY - DATA BELOW THRESHOLD.

PASS 0390 JUN 23,1972 JUN 24,1972 DAY 175 176

DSS 14 A.C.S. 175/1501 L.O.S. 176/0410 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

BIT RATES:	4.05	8.1
*	TCP A SCI	TCP A SCI
ACTUAL	5.6	2.9
PREDICT	5.7	3.0
DIFFER	-0.1	-0.1

PASS 0390 JUN 23,1972 JUN 23,1972 DAY 175 175

DSS 11 A.O.S. 175/1923 L.C.S. 175/2154 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

UPLINK ONLY - DATA BELOW THRESHOLD.

PASS 0392 JUN 24,1972 JUN 25,1972 DAY 176 177

DSS 14 A.O.S. 176/1904 L.C.S. 177/0408 COMMANDS 311 RANGING MC

DEVIATIONS OR ANOMALIES

20512-21027 360/75 6 DOWN TLM PROCESS HUNG UP WARM/WARM DR 3718

PASS 0393 JUN 25,1972 JUN 25,1972 DAY 177 177

DSS 14 A.O.S. 177/1651 L.C.S. 177/2230 COMMANDS 1 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0393 JUN 26,1972 JUN 26,1972 DAY 178 178

DSS 62 A.O.S. 178/1250 L.O.S. 178/1712 COMMANDS 10 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0393 JUN 26,1972 JUN 26,1972 DAY 178 178

DSS 12 A.O.S. 178/1900 L.O.S. 178/2156 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

LP-LINK ONLY.

PASS 0394 JUN 26,1972 JUN 27,1972 DAY 178 179

DSS 14 A.O.S. 178/1458 L.O.S. 179/0405 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

00362-00522 360/75A DOWN; LOCKED OUT OF SYSTEM. RE-IPL DR 3721.

PASS 0396 JUN 28,1972 JUN 29,1972 DAY 180 181

DSS 14 A.O.S. 180/1506 L.O.S. 181/0402 COMMANDS 435 RANGING ML

DEVIATIONS OR ANOMALIES

PASS 0397 JUN 29,1972 JUN 29,1972 DAY 181 181

DSS 14 A.O.S. 181/1645 L.O.S. 181/2241 COMMANDS 3 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0398 JUN 30,1972 JUN 30,1972 DAY 182 182

DSS 62 A.O.S. 182/1246 L.O.S. 182/1910 COMMANDS 12 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0398 JUN 30,1972 JUL 01,1972 DAY 182 183

DSS 14 A.O.S. 182/1455 L.O.S. 183/0359 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

		BIT RATE 33 1/3	8.01
	RX 1	TCP B ENG	TCP B SCI
ACTUAL	149.5	7.6	2.6
PREDIC	149.8	6.2	2.7
RESID	+0.3	+1.4	-0.1

18302-18422 360/75A DOWN, CPU HALT.
19242-19342 360/75A DOWN, CANCEL RTJS AND RESTART.
21172-21222 3100 DOWN, RESTART REF DR 3628.
21282-21312 3100 DOWN, RESTART REF DR 3628.
21352-21362 3100 DOWN, RESTART REF DR 3628.
22182-22382 360/75A DOWN, CABLE SWAP SCHEDULED.
01342-01382 360/75A DOWN, DR 3737.

PASS 0398 JUN 30,1972 JUN 30,1972 DAY 182 182

DSS 12 A.O.S. 182/1905 L.O.S. 182/2202 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0400 JUL 02,1972 JUL 03,1972 DAY 184 185

DSS 14 A.O.S. 184/1527 L.O.S. 185/0355 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

0306Z TRANSMITTER FAILED DUE TO A COOLANT FLOW PROBLEM.
DR T-2151.
1906Z TCP-A DROP LOCK, SUSPECT POWER SURGE FROM DDA, DR T-2150

PASS 0402 JUL 05,1972 JUL 06,1972 DAY 187 188

DSS 14 A.O.S. 187/1453 L.O.S. 188/0351 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

1600Z - COMMAND MSG 236-01 ABORTED DUE TO COMMAND MOD BEING TURNED OFF AT WRONG TIME. DR T-2152.

PASS 0403 JUL 05,1972 JUL 06,1972 DAY 187 188

DSS 14 A.O.S. 187/1455 L.O.S. 188/0349 COMMANDS 651 RANGING NIL

DEVIATIONS OR ANOMALIES

TWO ABORTS DUE TRANSMITTER TRIP-OFFS, DR'S T-2154 AND T-2155. CONTINUED TO RECEIVE ALARM "ACTIVE NOT ENABLED" AFTER ACTIVE ENABLE WAS SENT; DR N-0283. CMD STK RECALL SHOWED EMPTY WHEN COMMANDS WERE IN STOCK. REF. DR N-0250.

PASS 0404 JUL 06,1972 JUL 06,1972 DAY 188 188

DSS 14 A.O.S. 188/1700 L.O.S. 188/2230 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0405 JUL 07,1972 JUL 08,1972 DAY 189 190

DSS 14 A.O.S. 189/1515 L.O.S. 190/0346 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

1904Z-1905Z TCP-A RELOAD DR N-0285.

PASS 0407 JUL 09,1972 JUL 10,1972 DAY 191 192

DSS 14 A.O.S. 191/1447 L.O.S. 192/0343 COMMANDS 34 RANGING MU

DEVIATIONS OR ANOMALIES

PASS 0408 JUL 10,1972 JUL 11,1972 DAY 192 193

DSS 14 A.O.S. 192/1455 L.O.S. 193/0342 COMMANDS 16 RANGING NIL

DEVIATIONS OR ANOMALIES

0001Z-0037Z 360/75A DOWN-LOCKED OUT OF SYSTEM.
DR 3768 REFERS.

PASS 0408 JUL 10,1972 JUL 10,1972 DAY 192 192

DSS 12 A.O.S. 192/1912 L.O.S. 192/2213 COMMANDS 3 RANGING NIL

DEVIATIONS OR ANOMALIES

BELOW TELEMETRY THRESHOLD, NO DATA EXPECTED.

PASS 0410 JUL 12,1972 JUL 13,1972 DAY 194 195

DSS 14 A.O.S. 194/1517 L.O.S. 195/0337 COMMANDS 4 RANGING MU

DEVIATIONS OR ANOMALIES

STATION WENT TO MANUAL DURING EXC. FREQ CHECK REQUEST. DR T-2163

PASS 0411 JUL 13,1972 JUL 13,1972 DAY 195 195

DSS 14 A.O.S. 195/1700 L.O.S. 195/2230 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0412 JUL 14,1972 JUL 15,1972 DAY 196 197

DSS 14 A.O.S. 196/1455 L.O.S. 197/0333 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

PASS 0414 JUL 16,1972 JUL 17,1972 DAY 198 199

DSS 14 A.O.S. 198/1442 L.O.S. 199/0330 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

PASS 0415 JUL 17,1972 JUL 18,1972 DAY 199 200

DSS 14 A.O.S. 199/1441 L.O.S. 200/0328 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

PASS 0417 JUL 19,1972 JUL 20,1972 DAY 201 202

DSS 14 A.O.S. 201/1442 L.O.S. 202/0323 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

SCHEDULED END OF TRACK EXTENDED 20 MINS. PER PROJECT REQUEST.
2115Z AND 2209Z TRANSMITTER TRIP-OFF; REF DR T-2171.
1530Z-1545Z TCP-A HUNG-UP; REF DR T-2170.

PASS 0418 JUL 20,1972 JUL 20,1972 DAY 202 202

DSS 14 A.O.S. 202/1655 L.O.S. 202/2230 COMMANDS 68 RANGING NIL

DEVIATIONS OR ANOMALIES

EXCITER #1 FAILED. SWITCHED TO EXCITER #2. TDH SYSTEM CANNOT BE SWITCHED FROM EXCITER #1. ALL DOPPLER DATA SUSPECTED.
1922Z-1927Z - TRANSMITTER (20KW) TRIP-OFF. DR T-2173.

PASS 0419 JUL 21,1972 JUL 22,1972 DAY 203 204

DSS 14 A.O.S. 203/1509 L.O.S. 204/0319 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

PASS 0428 JUL 30,1972 JUL 31,1972 DAY 212 213

DSS 14 A.O.S. 212/1431 L.O.S. 213/0302 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

1544Z - 20 KW TRANSMITTER TRIP-OFF. BODY OVER CURRENT ALARM.
DR T-2185.

PASS 0429 JUL 31,1972 AUG 01,1972 DAY 213 214

DSS 14 A.O.S. 213/1428 L.O.S. 214/0300 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

2059Z - TCP HANG-UP, REQUIRED RELOAD DR T-2189, MEMORY PARITY ERRORS

PASS 0431 AUG 02,1972 AUG 03,1972 DAY 215 216

DSS 14 A.O.S. 215/1436 L.O.S. 216/0256 COMMANDS 532 RANGING MU

DEVIATIONS OR ANOMALIES

215/1420Z MM/PROJ CONNECTED COMMAND PRIOR TO SYSTEM CK.
DR N-0316 REFERS.
215/1425Z ESS DISABLED HSDL DURING COMMAND CK-OUT.
DR N-0317 REFERS.
215/1750Z EXCESSIVE DOPPLER NOISE AT 2-W FM DSS.
DR N-0319 REFERS.
216/0159Z 14 TCP DOWN FOR RESTART DUE TO TLM FMT PROBLEM.
DR T-2196 REFERS.
216/0225Z 14 TCP DOWN FOR RESTART DUE TO TLM FMT HANG-UP.
DR T-2196 REFERS.

PASS 0432 AUG 03,1972 AUG 03,1972 DAY 216 216

DSS 14 A.O.S. 216/1702 L.C.S. 216/2230 COMMANDS 16 RANGING NO

DEVIATIONS OR ANOMALIES

OR T-2199 TCP-A PROGRAM HALTED. TIME 1932Z
OR T-2201 TCP-B PROGRAM HALTED. TIME 2109Z
OR T-2202 DSIF CONTROL GAVE STATION INCORRECT XA FREQUENCY.

PASS 0433 AUG 04,1972 AUG 05,1972 DAY 217 218

DSS 14 A.O.S. 217/1437 L.C.S. 218/0251 COMMANDS 129 RANGING NIL

DEVIATIONS OR ANOMALIES

1505Z-1507Z TCP-A RE-INT FOR REVE #2 PRIME DR T-2204.

PASS 0436 AUG 07,1972 AUG 08,1972 DAY 220 221

DSS 14 A.O.S. 220/1424 L.O.S. 221/0245 COMMANDS 15 RANGING NIL

DEVIATIONS OR ANOMALIES

* TCP A SCI 4KBPS		TCP A SCI 8.1KBPS
ACTUAL	5.5	3.0
PREDIC	5.7	3.0
DIFFER	-0.2	0.0

PASS 0439 AUG 10,1972 AUG 10,1972 DAY 223 223

DSS 14 A.O.S. 223/0059 L.O.S. 223/0240 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0439 AUG 10,1972 AUG 11,1972 DAY 223 224

DSS 14 A.O.S. 223/1442 L.C.S. 224/0238 COMMANDS 75 RANGING NO

DEVIATIONS OR ANOMALIES

1822Z-1825Z AND 1847Z-1849Z 3100 DOWN DR 3889.
REF DR N-0319 HIGH DOPPLER NOISE.

PASS 0440 AUG 11,1972 AUG 12,1972 DAY 224 225

DSS 14 A.O.S. 224/1443 L.C.S. 225/0237 COMMANDS 1 RANGING NO

DEVIATIONS OR ANOMALIES

1448Z-1610Z DSS-14 400KW TRANSMITTER IGNITRON POWER SUPPLY
BLOWING FUSES (SHORT IN POWER CABLE CONNECTOR). DR T-2219.
1723Z-1735Z 360/75 DOWN. DR 3896
HIGH 2-WAY DOPPLER NOISE THROUGHOUT PASS. REF DR N-0319.

PASS 0443 AUG 14,1972 AUG 15,1972 DAY 227 228

DSS 14 A.O.S. 227/1440 L.O.S. 228/0230 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

22222-22252, 3100 DOWN, DR 3905.
REF DR N-C319. HIGH DOPPLER NOISE.

PASS 0445 AUG 16,1972 AUG 17,1972 DAY 229 230

DSS 14 A.O.S. 229/1428 L.O.S. 230/0225 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

15282-15302, NOISY MICRO-WAVE, SWAPPED TO LAND LINES. DR C-6041

PASS 0446 AUG 17,1972 AUG 18,1972 DAY 230 231

DSS 14 A.O.S. 230/1439 L.O.S. 231/0223 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

HIGH SPEED LINES DOWN 0126Z-0128Z, 0135Z-0138Z, DR 6C54.

PASS 0447 AUG 18,1972 AUG 19,1972 DAY 231 232

DSS 14 A.O.S. 231/1440 L.O.S. 232/0221 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

15352-15412 360/75B DOWN, DR 3922.
15552-16062 360/75B DOWN, REF DR 3922.

PASS 0449 AUG 20,1972 AUG 21,1972 DAY 233 234

DSS 14 A.O.S. 233/1435 L.O.S. 234/0216 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

16202-16352 360/75 AND 3100 SYSTEM DOWN. DR 3932.
16462-17012 360/75 AND 3100 SYSTEM DOWN. DR 3933.
17242-17402 360/75 AND 3100 SYSTEM DOWN. DR 3934 - SYSTEM SWAPPED TO 'A' (360).
17502- ADVISED OC 360 NOT PROCESSING MONITOR DATA INCOMING.
18152-18252 OPSCON RESTARTED 360 R/T JOB STEP FOR MONITOR DATA, NO HELP.
18362-18552 360/75 AND 3100 DOWN. DR 3935. SWAPPED 3100'S. MONITOR NOW PROCESSING AGAIN.
19222-21162 3100 DOWN AGAIN, SOME FORMATS WORKING AT 2005Z, SYSTEM UNUSABLE IN NAT AREA. DR 3936.

PASS 045C AUG 21,1972 AUG 22,1972 DAY 234 235

DSS 14 A.O.S. 234/1435 L.O.S. 235/0214 COMMANDS 1 RANGING NIL

DEVIATIONS OR ANOMALIES

1531Z-1554Z 3100 DOWN. REF DR 3943.
1544Z-1553Z 360 DOWN, NO DTV SYSTEM. REF DR 3943.
1608Z-1614Z 360 DOWN. REF DR 3943.
1906Z-1917Z 360/75B DOWN. REF DR 3943.

PASS 0452 AUG 23,1972 AUG 24,1972 DAY 236 237

DSS 14 A.O.S. 236/1433 L.O.S. 237/0210 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

1945Z-1946Z 360/75A BACKLOGGING. DR 3957.

PASS 0453 AUG 24,1972 AUG 25,1972 DAY 237 238

DSS 14 A.O.S. 237/1435 L.O.S. 238/0208 COMMANDS 1 RANGING NIL

DEVIATIONS OR ANOMALIES

1710Z-1721Z 360/75A DOWN. IPL REQUIRED. DR 3962.
1817Z-1845Z 360/75A DOWN. SWAP TO B. REF DR 3962.
2245Z-2301Z 360/75B DOWN. DR 3964. 1052 LOCKOUT.
2013Z- FD AND DATA QUAL. ALARMS ON COMMAND SYSTEM.
DR N-0354.

PASS 0454 AUG 25,1972 AUG 26,1972 DAY 238 239

DSS 14 A.O.S. 238/1431 L.O.S. 239/0205 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

1558Z-1610Z 360/75B DOWN. DR 3966.

PASS 0455 AUG 26,1972 AUG 27,1972 DAY 239 240

DSS 14 A.O.S. 239/1429 L.O.S. 240/0203 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

PASS 0456 AUG 27,1972 AUG 28,1972 DAY 240 241

DSS 14 A.O.S. 240/1429 L.O.S. 241/0201 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

1658Z-1702Z 3100 DOWN. DR 3968.
2204Z-2207Z 3100 DOWN. DR 3968.
2349Z-2355Z 3100 DOWN. SW TO 3100/B. DR 3975.
0005Z-0008Z 3100 DOWN. BACK ON 3100/A. DR 3976.
0113Z-0121Z 3100 DOWN. RESTART REQUIRED. REF DR 3975.

PASS 0457 AUG 28,1972 AUG 29,1972 DAY 241 242

DSS 14 A.O.S. 241/1421 L.O.S. 242/0159 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

1711Z-1718Z 360/75A DOWN, SWAPPING DISK PACKS. DR 3979.
1606Z-1610Z 3100A DOWN, SWITCHED TO 3100B. DR 3977.
1930Z-2100Z 400KW TRANSMITTER DOWN. DR T-2248.
2122Z-2135Z 400KW TRANSMITTER DOWN. LOW CURRENT. DR 2249.
TLM: RECVR ALMOST CONSTANTLY OUT OF LOCK. 360/75 IN PN MODE WITH 1 PN ERROR.

PASS 0459 AUG 30,1972 AUG 31,1972 DAY 243 244

DSS 14 A.O.S. 243/1425 L.O.S. 244/0001 COMMANDS 0 RANGING MU

DEVIATIONS OR ANOMALIES

NO TELEMETRY AVERAGES DUE TO ALMOST CONSTANT RECEIVER GLITCHES. RECEIVING SPONTANEOUS SUBCA FREQ F-C ALARMS. DR N-0354 REFERS.
1628Z-1641Z 360/75B DOWN. DR 3987.
1726Z-1737Z 360/75B DOWN. DR 3988.
2129Z-2140Z 360/75B DOWN. DR 3991.

PASS 0460 AUG 31,1972 SEP 01,1972 DAY 244 245

DSS 14 A.O.S. 244/1729 L.O.S. 245/0152 COMMANDS 0 RANGING MU

DEVIATIONS OR ANOMALIES

NO TOF FROM 1949Z - EOT. DOPPLER COUNTER FAILURE. DOPPLER DATA UNUSABLE.
NO TLM FIGURES DUE TO ALMOST CONSTANT RECEIVER GLITCHING.
1632Z-1650Z 3100 SYSTEM DOWN. DR 3993.
1643Z-1650Z 360/75 DOWN. DR 3993.
2151Z-2154Z JPL CP DOWN. SWAPPED TO 'A' SYSTEM. DR C-6115.

PASS 0462 SEP 02,1972 SEP 03,1972 DAY 246 247

DSS 14 A.O.S. 246/1418 L.O.S. 247/0148 COMMANDS 0 RANGING MU

DEVIATIONS OR ANOMALIES

1545Z-1557Z 360/75B DOWN. DR 3999.

PASS 0463 SEP 03,1972 SEP 04,1972 DAY 247 248

DSS 14 A.O.S. 247/1421 L.O.S. 248/0146 COMMANDS 0 RANGING MU

DEVIATIONS OR ANOMALIES

1530Z-1535Z 360/75 DOWN. DR 4006.
2255Z FAILURE TO BRING UP 750KW GENERATOR. DR T-2256.

PASS 0464 SEP 04,1972 SEP 05,1972 DAY 248 249

DSS 14 A.C.S. 248/1422 L.O.S. 249/0143 COMMANDS 0 RANGING MU

DEVIATIONS OR ANOMALIES

PASS 0465 SEP 05,1972 SEP 06,1972 DAY 249 250

DSS 14 A.C.S. 249/1422 L.O.S. 250/0141 COMMANDS 0 RANGING MU

DEVIATIONS OR ANOMALIES

PASS 0466 SEP 06,1972 SEP 07,1972 DAY 250 251

DSS 14 A.O.S. 250/1618 L.O.S. 251/0139 COMMANDS 0 RANGING MU

DEVIATIONS OR ANOMALIES

AOS DELAYED DUE TO RANGING CAL NOT COMPLETE, ON POINT AT 1620Z.
1854Z-1857Z TCP RELOADED.
1847Z-1854Z 360/75A DOWN. DR 4011.
1939Z-1943Z HSDL DOWN. DR 6135.
2055Z-2059Z TCP RELOADED.
2140Z- LOST 2-WAY DUE TO EMERGENCY ANTENNA STOP AT 2036Z.
DR T-2237.

PASS 0467 SEP 07,1972 SEP 08,1972 DAY 251 252

DSS 14 A.O.S. 251/1414 L.O.S. 252/0137 COMMANDS 0 RANGING MU

DEVIATIONS OR ANOMALIES

2159Z-2212Z 360/75A DOWN, IPL REQUIRED, DR 4013.

PASS 0468 SEP 08,1972 SEP 09,1972 DAY 252 253

DSS 14 A.O.S. 252/1418 L.O.S. 253/0134 COMMANDS 0 RANGING MU

DEVIATIONS OR ANOMALIES

2131Z-2134Z, 3100 SYSTEM DOWN, DR 4018.

PASS 0469 SEP 09,1972 SEP 10,1972 DAY 253 254

DSS 14 A.O.S. 253/1418 L.O.S. 254/0132 COMMANDS 0 RANGING MU

DEVIATIONS OR ANOMALIES

PASS 0470 SEP 10,1972 SEP 11,1972 DAY 254 255

DSS 14 A.O.S. 254/1410 L.O.S. 255/0130 COMMANDS 0 RANGING MU

DEVIATIONS OR ANOMALIES

2035Z-2039Z, TCP RELOADED

PASS 0471 SEP 11,1972 SEP 12,1972 DAY 255 256

DSS 14 A.C.S. 255/1410 L.C.S. 256/0127 COMMANDS 0 RANGING MU

DEVIATIONS OR ANOMALIES

1942Z-2006Z 360/75A DOWN, IPL REQUIRED, DR-4025.

PASS 0472 SEP 12,1972 SEP 13,1972 DAY 256 257

DSS 14 A.O.S. 256/1417 L.C.S. 257/0125 COMMANDS 0 RANGING MU

DEVIATIONS OR ANOMALIES

1432Z-1437Z TCP-A RELOAD, (NO DR), DURING TLM VALIDATION.
1650Z-1702Z 360/75A DOWN, DR 4028 .
1810Z- OC ADVISED STATION TO INHIBIT COMMAND HSD DUE TO NUMEROUS ALARMS, NO COMMANDING ANTICIPATED, NO DR.
1931Z-1938Z 360/75A DOWN, DR 4030.

PASS 0473 SEP 13,1972 SEP 14,1972 DAY 257 258

DSS 14 A.C.S. 257/1414 L.C.S. 258/0123 COMMANDS 0 RANGING MU

DEVIATIONS OR ANOMALIES

1453Z-1505Z 360/75 DOWN, DR 4035 .
1530Z-1539Z 360/75 DOWN, DR 4037 - 14 MM-71 PROCESS PULLED DUE PN COMMANDING.
1553Z-1601Z 360/75 DOWN, DR 4037
2322Z-2333Z 360/75 DOWN, DR 4041
2346Z-2352Z 360/75 DOWN, DR 4042

PASS 0474 SEP 14,1972 SEP 15,1972 DAY 258 259

DSS 14 A.O.S. 258/1416 L.O.S. 259/0121 COMMANDS 0 RANGING MU

DEVIATIONS OR ANOMALIES

1420Z-1432Z 360/75 DOWN FOR IPL, PER REQUEST OF PN PROJECT, NC DR.
1822Z-1824Z ANTENNA OFF POINT. DR T-2261.
* TELEMETRY POWER 400 AND 200KW.

PASS 0476 SEP 16,1972 SEP 17,1972 DAY 260 261

DSS 14 A.O.S. 260/1437 L.C.S. 261/0116 COMMANDS 0 RANGING MU

DEVIATIONS OR ANOMALIES

1430Z-1610Z 400KW TRANSMITTER DOWN, UNABLE TO SYNCH. ON COMMERCIAL POWER. DR T-2275.
1650Z-1704Z 360/75B DOWN, PROCESSOR HUNG UP. DR 4051.
2055Z-2101Z HSDL DOWN. DR C-6174.
0100Z-0115Z 360/75 DOWN. DR 4053.

PASS 0477 SEP 17,1972 SEP 18,1972 DAY 261 262

DSS 14 A.C.S. 261/1411 L.C.S. 262/0114 COMMANDS 0 RANGING MU

DEVIATIONS OR ANOMALIES

22C8Z-2215Z 360/75 DOWN. DR 4054.

PASS 0478 SEP 18,1972 SEP 19,1972 DAY 262 263

DSS 14 A.O.S. 262/1410 L.O.S. 263/0111 COMMANDS 0 RANGING MU

DEVIATIONS OR ANOMALIES

3100 DOWN 1415Z-1420Z DR 4055.
3100 DOWN 1457Z-1501Z DR 4055.
3100 DOWN 2059Z-2104Z DR 4055.

PASS 0480 SEP 20,1972 SEP 21,1972 DAY 264 265

DSS 14 A.O.S. 264/1716 L.O.S. 265/0107 COMMANDS 1 RANGING NIL

DEVIATIONS OR ANOMALIES

2030Z-2042Z 360/75A DOWN, IPL REQUIRED, DR 4060.

PASS 0481 SEP 21,1972 SEP 22,1972 DAY 265 266

DSS 14 A.O.S. 265/1408 L.C.S. 266/0104 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

1412Z-1422Z TCP-A RELOAD, MAG TAPE DISABLED. NO DR.
2249Z-2302Z TCP-A RELOADED, TCP HANG UP. DR T-2285.
0002Z-0005Z TCP-A RELOADED, TCP HANG UP. REF DR T-2285

PASS 0482 SEP 22,1972 SEP 23,1972 DAY 266 267

DSS 14 A.C.S. 266/1404 L.O.S. 267/0102 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

1501Z-1516Z 360/75A DOWN. DR 4064.
1642Z-1647Z HSDL DOWN, PRT/PUNCH RECORDER PROBLEM. DR C-1699.
1725Z-1736Z 360/75A DOWN, TLM PROCESS HUNG-UP (PN). DR 4067.
1843Z-1845Z MICROWAVE DOWN (SC/75).

PASS 0483 SEP 23,1972 SEP 24,1972 DAY 267 268

DSS 14 A.O.S. 267/1406 L.O.S. 268/0100 COMMANDS 6 RANGING MU

DEVIATIONS OR ANOMALIES

2249Z-2301Z 360/75B DOWN, IPL REQUIRED. DR 4073.
0006Z-0014Z TCP-A HALTED, TCP RELOAD REQUIRED. DR T-2285.
0023Z-0040Z 3100B UP AND DOWN, SW TO 3100A, GOULD 4800,
NO HARD COPIES, DR 4055 - GOULD 4800'S REMAIN RED WITH 3100A CP.

PASS 0484 SEP 24,1972 SEP 25,1972 DAY 268 269

DSS 14 A.O.S. 268/1405 L.O.S. 269/0057 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

1802Z-1809Z 360/75A DOWN. DR 4081.
1405Z-0057Z EXCESSIVE TAPE WRITE ERRORS. DR N-0380.

PASS 0485 SEP 25,1972 SEP 26,1972 DAY 269 270

DSS 14 A.O.S. 269/1404 L.O.S. 270/0555 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

1941Z-2007Z TCP-A RELOAD. REF DR 2285.
2117Z-2137Z TCP-A RELOAD. REF DR 2289.
2327Z-2336Z TCP-A RELOAD. REF DR 2289.

PASS 0487 SEP 27,1972 SEP 28,1972 DAY 271 272

DSS 14 A.O.S. 271/1403 L.O.S. 272/0051 COMMANDS 214 RANGING NIL

DEVIATIONS OR ANOMALIES

1422Z- COMMAND ABORT. DC-09. DR C-0387 REFERS.
1445Z- COMMAND ABORT. DC-78. DR T-2293 REFERS.

PASS 0488 SEP 28,1972 SEP 29,1972 DAY 272 273

DSS 14 A.O.S. 272/1500 L.O.S. 273/0048 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

PASS 0489 SEP 29,1972 SEP 30,1972 DAY 273 274

DSS 14 A.O.S. 273/1432 L.O.S. 274/0046 COMMANDS 3 RANGING MU

DEVIATIONS OR ANOMALIES

2315Z-2326Z 360/75A DOWN, DTV STOP UPDATING. DR 4100.

PASS 0489 SEP 29,1972 SEP 29,1972 DAY 273 273

DSS 12 A.O.S. 273/1718 L.O.S. 273/1745 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0490 SEP 30,1972 OCT 01,1972 DAY 274, 275

DSS 14 A.O.S. 274/1424 L.O.S. 275/0044 COMMANDS 2 RANGING MU

DEVIATIONS OR ANOMALIES

2326Z-2340Z 360/75 DOWN. DR 4104.

PASS 0491 OCT 01,1972 OCT 02,1972 DAY 275 276

DSS 14 A.O.S. 275/1423 L.O.S. 276/0041 COMMANDS 1 RANGING MU

DEVIATIONS OR ANOMALIES

ACS DELAYED FOR A RANGE CALIBRATION ON THE 400KW.

PASS 0492 OCT 02,1972 OCT 03,1972 DAY 276 277

DSS 14 A.O.S. 276/1412 L.O.S. 277/0039 COMMANDS 47 RANGING MU

DEVIATIONS OR ANOMALIES

1814Z-1816Z TCP-A RELOADED. DR T-2297 REFERS.
1315Z- 40KW RED AT AOS.
1427Z- 2CKW FAILED DUE VOLTAGE RECTIFIER. NO DR.
2326Z- 2CKW FAILED DUE INTERLOCK. DR T-2296 REFERS.

PASS 0494 OCT 04,1972 OCT 05,1972 DAY 278 279

DSS 14 A.O.S. 278/1430 L.O.S. 279/0034 COMMANDS 3 RANGING MU

DEVIATIONS OR ANOMALIES

17C7Z-1726Z 360/75A DOWN, RESTART REQUIRED. DR 4123.

PASS 0495 OCT 05,1972 OCT 06,1972 DAY 279 280

DSS 14 A.O.S. 279/1356 L.O.S. 280/0032 COMMANDS 4 RANGING MU

DEVIATIONS OR ANOMALIES

1526Z-1534Z 360/75A DOWN FOR RESTART, TLM PROCESSOR'S HALTED. DR 4127.

PASS 0496 OCT 06,1972 OCT 07,1972 DAY 280 281

DSS 14 A.O.S. 280/1344 L.O.S. 281/0030 COMMANDS 5 RANGING MU

DEVIATIONS OR ANOMALIES

1833Z-1842Z 360/75A DOWN, TTY OUTPUT HUNG UP DR 4130

PASS 0497 OCT 07,1972 OCT 07,1972 DAY 281 281

DSS 14 A.O.S. 281/1500 L.O.S. 281/1557 COMMANDS 3 RANGING NIL

DEVIATIONS OR ANOMALIES

1523Z-1526Z TCP-B CMD SYS RE-VALIDATED DUE TO RE-TUNING TC CAL-MODE AT STATION TO INITIALIZE TLM WHILE CMDS IN STACK
1834Z-1842Z 360/75 DOWN I/O PROBLEMS DR 4134
1900Z-1906Z 360/75 DOWN BAD SYS RESTART DR 4135

PASS 0498 OCT 08,1972 OCT 09,1972 DAY 282 283

DSS 14 A.O.S. 282/1345 L.O.S. 283/0025 COMMANDS 3 RANGING MU

DEVIATIONS OR ANOMALIES

PASS 0499 OCT 09,1972 OCT 10,1972 DAY 283 284

DSS 14 A.O.S. 283/1344 L.O.S. 284/0023 COMMANDS 537 RANGING MU

DEVIATIONS OR ANOMALIES

PASS 0499 OCT 10,1972 OCT 10,1972 DAY 284 284

DSS 41 A.O.S. 284/0635 L.O.S. 284/0728 COMMANDS 8 RANGING NIL

DEVIATIONS OR ANOMALIES

0706Z CMC 100-02 DC-32 ABORT DUE TO BIT VERIFY ON BIT 9

PASS 0500 OCT 10,1972 OCT 11,1972 DAY 284 285

DSS 14 A.O.S. 284/2319 L.O.S. 285/0002 COMMANDS 5 RANGING NIL

DEVIATIONS OR ANOMALIES

SPECIAL CMD SEQUENCE PASS

PASS 0501 OCT 11,1972 OCT 12,1972 DAY 285 286

DSS 14 A.O.S. 285/1328 L.O.S. 286/0018 COMMANDS 50 RANGING MU

DEVIATIONS OR ANOMALIES

1332Z-1347Z RECVED CONF WD CHECK FAIL ALARMS FROM TCP-B,
SWITCH TO TCP-A DR N-0402
1500Z TLM SWITCH TO TCP-A,TCP-B FOR RANGING
2201Z-2214Z 360/75 DOWN DR 4148

PASS 0502 OCT 12,1972 OCT 13,1972 DAY 286 287

DSS 14 A.O.S. 286/1346 L.O.S. 287/0016 COMMANDS 9 RANGING MU

DEVIATIONS OR ANOMALIES

1655Z-1703Z 3100 DOWN DR 4152
0001Z-0006Z 3100 DOWN REF DR 4152

PASS 0503 OCT 13,1972 OCT 14,1972 DAY 287 288

DSS 14 A.O.S. 287/1326 L.O.S. 288/0013 COMMANDS 19 RANGING NIL

DEVIATIONS OR ANOMALIES

1500Z-TCP 'A' WENT TO HIGH RATE.

PASS 0503 OCT 13,1972 OCT 13,1972 DAY 287 287

DSS 12 A.O.S. 287/1400 L.O.S. 287/1833 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

UPLINK SUPPORT ONLY

PASS 0504 OCT 14,1972 OCT 14,1972 DAY 288 288

DSS 14 A.O.S. 288/1349 L.O.S. 288/2156 COMMANDS 504 RANGING MU

DEVIATIONS OR ANOMALIES

N/A

PASS 0505 OCT 15,1972 OCT 15,1972 DAY 289 289

DSS 14 A.O.S. 289/1347 L.O.S. 289/2100 COMMANDS 27 RANGING MU

DEVIATIONS OR ANOMALIES

1509Z-1514Z,XTMTR OFF-PAST BODY CURRENT INTERLOCK TRIPPED. DR T-2311.

PASS 0506 OCT 16,1972 OCT 17,1972 DAY 290 291

DSS 14 A.O.S. 290/1346 L.O.S. 291/0006 COMMANDS 9 RANGING MU

DEVIATIONS OR ANOMALIES

1340Z CONFG WD CK FAIL ALARM DR N-0411

PASS 0507 OCT 17,1972 OCT 17,1972 DAY 291 291

DSS 12 A.O.S. 291/1320 L.O.S. 291/1826 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

UPLINK SUPPORT ONLY

PASS 0507 OCT 17,1972 OCT 18,1972 DAY 291 292

DSS 14 A.O.S. 291/1327 L.O.S. 292/0004 COMMANDS 21 RANGING NIL

DEVIATIONS OR ANOMALIES

1728Z-1731Z CDC 3100 DOWN HUNG UP,RESTART REQ. DR-4165
2237Z-2247Z CDC 3100 DOWN DR-4167

PASS 0508 OCT 18,1972 OCT 18,1972 DAY 292 292

DSS 14 A.O.S. 292/1324 L.O.S. 292/1549 COMMANDS 7 RANGING NIL

DEVIATIONS OR ANOMALIES

1317Z-CONFIG WD CK FAIL ALARM,TCP-B RELOADED TCP, DR-N-0415,REF DR-N-0411
CMDS XMTD-1335Z-1544Z

PASS 0508 OCT 18,1972 OCT 18,1972 DAY 292 292

DSS 11 A.O.S. 292/1745 L.O.S. 292/1900 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

NOTE-UPLINK SUPPORT ONLY,NO DATA AVAILABLE.

PASS 0508 OCT 18,1972 OCT 18,1972 DAY 292 292

DSS 14 A.O.S. 292/1848 L.O.S. 292/1904 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

1317Z-CONFIG WD CK FAIL ALARM, TCP-B RELOADED TCP, DR-N-0415. REF DR.N-0410, N-0411.

PASS 0509 OCT 19,1972 OCT 19,1972 DAY 293 293

DSS 51 A.O.S. 293/0435 L.O.S. 293/0600 COMMANDS 9 RANGING NIL

DEVIATIONS OR ANOMALIES

NO COMMUNICATION LINKS WITH STATION DUE TO SUB-CABLE BREAK. NO DATA RECEIVED. BLIND COMMANDING ONLY.
3 CMD ABTS DUE TO SUB-CARRIER FREQUENCY OUT OF LIMITS. NO DR. CMDING,BEST EFFORTS BASIS. STATION NOT UNDER CONFIGURATION CONTROL. SPLIT-PASS INFO. CMDS 166-01,02,03 ABORTED,INCORRECT SUB.FREQ LIMITS NO DR. NO COMMUNICATION LINKS WITH STATION DUE TO SUB-CABLE BREAK. STATION NOT UNDER CONFIG. CONTROL

PASS 0509 OCT 19,1972 OCT 19,1972 DAY 293 293

DSS 51 A.O.S. 293/1035 L.O.S. 293/1220 COMMANDS 9 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0509 OCT 19,1972 OCT 19,1972 DAY 293 293

DSS 11 A.O.S. 293/1700 L.O.S. 293/1905 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

UP-LINK SUPPORT ONLY

PASS 0509 OCT 19,1972 OCT 19,1972 DAY 293 293

DSS 14 A.O.S. 293/1850 L.O.S. 293/1902 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

ENTER OCCULTATION SUPPORT.

PASS 0510 OCT 20,1972 OCT 20,1972 DAY 294 294

DSS 51 A.O.S. 294/0435 L.O.S. 294/0545 COMMANDS 9 RANGING NIL

DEVIATIONS OR ANOMALIES

NO HSDL "BLIND" CMD SEQ IN MANUAL MODE.
CMD PERIOD: 0455Z-0540Z.

PASS 0510 OCT 20,1972 OCT 20,1972 DAY 294 294

DSS 14 A.O.S. 294/1336 L.O.S. 294/1550 COMMANDS 7 RANGING NIL

DEVIATIONS OR ANOMALIES

14 ACS AT 1336Z STATION DID NOT PUT DIS TO LINK UNTILL 1354Z
1255Z-1350Z 360/75 DOWN DR-4184 NO DATA TRANSFER TEST.

PASS 0511 OCT 21,1972 OCT 21,1972 DAY 295 295

DSS 51 A.O.S. 295/0335 L.O.S. 295/0430 COMMANDS 9 RANGING NIL

DEVIATIONS OR ANOMALIES

* NO HSDL

PASS 0511 OCT 21,1972 OCT 21,1972 DAY 295 295

DSS 14 A.O.S. 295/1320 L.O.S. 295/1551 COMMANDS 4 RANGING NIL

DEVIATIONS OR ANOMALIES

295/1415Z--MISSED 1ST 2-WAY ACQUISITION DR-N-0423
CMD TIME 1331Z-1551Z

PASS 0512 OCT 22,1972 OCT 22,1972 DAY 296 296

DSS 12 A.O.S. 296/ L.O.S. 296/ COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

* NO DATA

PASS 0512 OCT 22,1972 OCT 22,1972 DAY 296 296

DSS 41 A.O.S. 296/0020 L.O.S. 296/0110 COMMANDS 9 RANGING NIL

DEVIATIONS OR ANOMALIES

NC TLM DATA
RANGCM LCCK NOT SOLID
CMC TIME-0035Z-0110Z

PASS 0512 OCT 22,1972 OCT 22,1972 DAY 296 296

DSS 51 A.O.S. 296/0335 L.O.S. 296/0440 COMMANDS 9 RANGING NIL

DEVIATIONS OR ANOMALIES

1-WAY RECORD ONLY WITH MANUAL CMDING.

PASS 0512 OCT 22,1972 OCT 22,1972 DAY 296 296

DSS 14 A.O.S. 296/1319 L.O.S. 296/1551 COMMANDS 2 RANGING NIL

DEVIATIONS OR ANOMALIES

DR-NO426 BAD TDH PUNCH. DATA NOT NOT GETTING TO 360.
CMC TIME 1332Z-1546Z SPLIT-PASS SEQ.72296

PASS 0512 OCT 22,1972 OCT 22,1972 DAY 296 296

DSS 14 A.O.S. 296/1844 L.O.S. 296/1857 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

PASS 0513 OCT 23,1972 OCT 23,1972 DAY 297 297

DSS 14 A.O.S. 297/1340 L.O.S. 297/2350 COMMANDS 475 RANGING NIL

DEVIATIONS OR ANOMALIES

2021Z-2026Z 3100 DOWN DR-N-4204
2050Z-2133Z XMTR FAILURE 400 HZ GEN FAILURE DR T-2329
1339Z-1829Z TDH SYSTEM DOWN REF. DR-N-0426
CMC TIME 1351Z-2225Z

PASS 0514 OCT 24,1972 OCT 24,1972 DAY 298 298

DSS 12 A.O.S. 298/1520 L.O.S. 298/1628 COMMANDS 9 RANGING NIL

DEVIATIONS OR ANOMALIES

STATION SCHEDULED FOR CMDING ONLY.
* COMMAND SEQ.COMPLETED EARLY.
S/C WAS NOT ACTUALLY ACQUIRED.

PASS 0514 OCT 24,1972 OCT 25,1972 DAY 298 299

DSS 41 A.O.S. 298/2333 L.O.S. 299/0105 COMMANDS 9 RANGING NIL

DEVIATIONS OR ANOMALIES

NONE
CMC TIME 0030Z-0105Z

PASS 0515 OCT 25,1972 OCT 25,1972 DAY 299 299

DSS 14 A.O.S. 299/1316 L.O.S. 299/2340 COMMANDS 124 RANGING NIL

DEVIATIONS OR ANOMALIES

1517Z CMC SOFTWARE PROBLEM ERRONEOUS ALARMS GENERATED BY TCP.
DR-N-0430 REFERS.
1517Z CMC ABORT DUE TO TXR-FAIL CAUSED BY FAST BODY CURRENT
DR-N-0429 AND T-2311 REFERS.

2130Z LOST INDICATION OF S/C CMD SET LOCK ON 4 OCCASIONS DURING
TRK.DR-N-0431 AND DR-N-0432 REFERS.
2133Z TXR-FAIL AGN, FAST-BODY-CURRENT,REF DR-T-2311
CMC TIMES 1328Z-1343Z--1405Z-2323Z.

PASS 0516 OCT 26,1972 OCT 26,1972 DAY 300 300

DSS 14 A.O.S. 300/1315 L.O.S. 300/2338 COMMANDS 198 RANGING NIL

DEVIATIONS OR ANOMALIES

2125Z INABLE SENT TO STR FOR BLR 140,1,7 BUT RECEIVED INABLE
FOR BLR 140-1,8. WHICH WAS REJECTED AS PER DESIGN. SFOF PROBLEM
DR-N-0434.
2230Z DURING STA CC AND S UPDATE CMD ASSIGNMENTS CHANGED FM
MM-71 TO PN- DR -N-0435 AND DR-4216 REFER (SFOF PROBLEM.)
NO MONITOR DUMP AT (LOS).
CMC TIMES 1334Z-1800Z,1900Z-2339Z.

PASS 0517 OCT 27,1972 OCT 27,1972 DAY 301 301

DSS 14 A.O.S. 301/1316 L.O.S. 301/2341 COMMANDS 102 RANGING NIL

DEVIATIONS OR ANOMALIES

1343Z CHANGED DIS LOG TAPE TO CURE HIGH LGER. NO DR.
CMD TIMES: 1333Z-1814Z,1905Z-1932Z,2002Z-2037Z,2149Z-2341Z.

PASS 0517 OCT 27,1972 OCT 27,1972 DAY 301 301

DSS 12 A.O.S. 301/1636 L.O.S. 301/1814 COMMANDS 0 RANGING NIL

DEVIATIONS OR ANOMALIES

NONE

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GLOSSARY

bps	bits per second
CC&S	central computer and sequencer
CCTV	closed-circuit television
CME	celestial mechanics experiment
CMO	Chief of Mission Operations
CPS	Central Processing System
DAS	Data Automation Subsystem
DL	downlink
DSN	Deep Space Network
DTS	Digital Tracking Subsystem
GCF	Ground Communications Facility
GMT	Greenwich Mean Time (Zulu time)
HGA	high-gain antenna
HGAM	high-gain-antenna maneuver
HSD	high-speed data
I/O	input/output
IRIS	infrared interferometer spectrometer
IRR	infrared radiometer
JPL	Jet Propulsion Laboratory
LGA	low-gain antenna
MCCC	Mission Control and Computing Center
MM'71	Mariner Mars 1971
MNVR	maneuver
NASA	National Aeronautics and Space Administration
NASCOM	NASA Communications Network
NAT	Network Analysis Team
OC	Operations Chief
OCCUL	occultation
OCT	Operations Control Team
ODR	Original Data Record
OPSCON	Operations Controller
P&Y	pitch and yaw
PLBK	playback
PTT	project tracking tape
RTLT	round-trip light time
RTS	real-time science
SFOF	Space Flight Operations Facility
SMD	standard mission day
SNR	signal-to-noise ratio
TDA	tracking and data acquisition
TDH	Tracking Data Handling Subsystem
TDS	Tracking and Data System
UL	uplink
UVS	ultraviolet spectrometer
VLBI	very long baseline interferometry

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